ROAD ISSUES
IN THE
HEAVY OIL PRODUCING REGION
OF
SASKATCHEWAN

Oil and Gas Committee

Advisory Committee to the Minister
of Government Relations

JANUARY 2003

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Table of Contents

Executive Summary i

1.0 Introduction 1

1.1 A Primer on the Heavy Oil Industry 2

2.0 Municipal Interests 7

3.0 Oil Industry Interests 11

4.0 Provincial Interests 15

5.0 Saskatchewan's Haul Road Maintenance Agreements 17

5.1 Haul Road Maintenance Agreements 17
5.2 Oil Industry and Haul Road Maintenance Agreements in Saskatchewan 18
5.3 Past Examinations of the Haul Road Maintenance Agreements in Saskatchewan 20

6.0 Other Government Programs to support Road Maintenance costs for Municipalities 24

6.1 Department of Highways and Transportation 24
6.1.1 General Information Regarding Trucking in Saskatchewan 24
6.1.2 Department of Highways Trucking and Road Programs 30
6.1.2.1 Strategic Rural Roads Partnership Program 30
6.1.2.2 Transportation Partnership Program 34
6.2 TransGas 36
6.3 Rural Revenue Sharing Conditional Grants for Heavy Haul Roads 36
6.4 Prairie Grain Roads Program 38

7.0 The Oil & Gas Royalty Structure in Saskatchewan 39

8.0 A Financial Examination of Heavy Oil Municipalities 42

Summary Report of Financial Profiles for Heavy Oil RMs 42
8.1 Revenues and Expenditures for NW RMs 43
8.2 Selected Financial Condition and Bench Mark Indicators (Table 8.2) 47
8.3 NW Municipal Assessment and Levy (Tables 8.3.1 to 8.3.6) 49
8.4 Revenue Comparison (Table 8.4) 54
High Producing RMs of the NW Heavy Oil Region 55
8.5 High Producing NW RM Expenditures (Table 8.5) 55
8.6 High Producing NW RM Revenue (Table 8.6) 56
8.7 High Producing NW RM Financial Conditions (Table 8.7) 57
8.8 High Producing NW Municipal Commercial Assessment and Levy (Table 8.8) 58

9.0 Road Maintenance Assistance Programs Across Canada..... 59

9.1 Introduction 59
9.2 Alberta 59
9.2.1 Trial Road Notification and Repair Agreement 59
9.2.2 Alberta Resource Road/New Industry Program 63
9.3 Ontario 64
9.4 Québec 65
9.5 Newfoundland and Labrador 65
9.6 Yukon 66
9.7 Manitoba 66
9.8 British Columbia 67

10.0 Options for the Resolution of Road Issues in the Heavy Oil Producing Region of Saskatchewan 67

10.1 Introduction 67
10.2 Possible Options 69
10.2.1 Funding Initiatives 71
10.2.2 Agreements to Manage Transportation 76
10.2.3 Changes in Taxation 84
10.2.4 Technology 87

11.0 Recommendations 88

11.1 Introduction 88
11.2.1 Financial Proposals 88
11.2.2 Legislative Proposals 90

Appendices 93

Appendix 1 Executive Summary of the *Impact of Heavy Oil Development on Municipal Roads in Northwest Saskatchewan*, February 2002, North Central Transportation Planning Committee

Appendix 2 Executive Summary of the West Central Municipal Government Committee - Transportation Subcommittee Year 2001 Transportation Management Plan

Appendix 3 Saskatchewan Heavy "Oil Wells" by Productivity Range

Appendix 4 Crude Oil - Provincial Revenue Comparison

Appendix 5 Royalty Incentive Volumes for New Oil Wells Drilled on or after October 1, 2002

Appendix 6 Alberta Draft Trial Road Notification and Repair Agreement

Appendix 7 The Saskatchewan Petroleum Research Incentive Program

Executive Summary

Municipalities in the northwest area of the province are concerned about the damages caused to their roads from trucks hauling heavy oil, water and sand and related service trucks, and are seeking financial assistance to help maintain, construct and reconstruct these roads. The department of Government Relations and Aboriginal Affairs received a number of requests from municipalities to establish a task force to examine the issues related to heavy oil truck hauling.

In response to the requests for a task force, a municipal/provincial government/oil industry committee was reactivated and expanded to discuss the heavy oil road issues and to determine ways of solving the issues. Committee representatives are from:

- the Saskatchewan Association of Rural Municipalities (SARM);
- the Rural Municipal Administrators Association of Saskatchewan (RMAAS);
- the Crude Oil Production and Transportation Association (COPATA);
- the Canadian Association of Petroleum Producers (CAPP);
- Saskatchewan Industry and Resources (IR);
- Saskatchewan Highways and Transportation (DHT);
- Saskatchewan Finance (FI); and
- Saskatchewan Government Relations and Aboriginal Affairs (GRAA).

The review focussed on the eleven rural municipalities (RMs) of Senlac, Cut Knife, Hillsdale, Manitou Lake, Turtle River, Paynton, Eldon, Wilton, Mervin, Frenchman Butte and Britannia, although heavy oil is found in other rural municipalities.

The committee met with representatives from the eleven municipalities and the oil companies operating in the region on June 6, 2002 in Lashburn. Because the results of this review may have an impact on other rural municipalities with heavy oil trucking, the North Central Transportation Planning Committee (NCTPC) and the West Central Transportation Planning Committee (WCTPC) also participated in the June 6th discussions. The rural municipalities and the oil industry made presentations to the committee on their concerns and submitted written materials. At the meeting, the rural municipalities and the oil industry indicated that they are jointly looking for a solution to address road maintenance, construction and reconstruction issues in this region.

Following the meeting on June 6th, the committee incorporated the information provided by the municipalities and the oil industry into a draft discussion paper. In addition, the committee:

- researched information on road assistance programs in Saskatchewan and other provinces;
- gathered information on the province's oil royalty structure;
- analyzed the financial health of a number of the rural municipalities in the study;
- examined the revenue sources of the municipalities;
- analyzed a number of options to address the issues;

- developed nine options and discussed them with RMs and industry in October 2002; and
- finalized its report, which includes six proposals.

The review confirms that the heavy oil industry plays an important role in both the provincial and regional economy of the Lloydminster area. The Lloydminster heavy oil region has a variety of transportation issues that are unique largely because it is not technically or economically feasible to pipeline the heavy oil in the Lloydminster area.

The highways and roads are the pipelines for the heavy oil industry. The oil industry indicates that a well-maintained road network is vital for its business and for the expansion of the industry.

Although RMs in this region have a larger assessment and commercial property tax base compared to the provincial rural municipal average, their road costs are also significantly higher. This makes it difficult to fund the road restoration and reconstruction that is required as a result of the damage from the heavy oil truck traffic.

The committee discussed several issues surrounding the use of existing tax tools by municipalities. The committee was unable to reach a consensus and concluded that resolution of issues relating to municipal tax tools is beyond the mandate of this committee.

In response to municipalities in the heavy oil producing areas of the province requesting additional road maintenance or construction assistance, the committee identified six of the options for the government's consideration. These are not mutually exclusive and a combination of them may be needed to find the best solution that serves the interests of the oil industry, the rural municipalities and the province.

The committee proposes the government consider the following:

Financial Proposals

1) Provide new incremental provincial funding to rural municipalities through a new program offering financial assistance for construction and maintenance costs of RM roads that feed traffic from well sites to the heavy haul roads;
2) Provide new incremental provincial funding through the Heavy Haul High Volume roads program and approval for a program review to update criteria to reflect the current needs of the heavy oil industry and their use of the infrastructure;
3) Utilize DHT's current Transportation Partnership Program (TPP) to include rural municipal roads;
4) Provide a new royalty tax credit program designed to encourage oil companies to enter into cost sharing partnerships with rural municipalities to either construct or maintain a particular road segment or route utilized for heavy oil transportation;

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Legislative Proposals

5) Amend the legislation and regulations governing Haul Road Maintenance Agreements, whereby RMs enter into agreements with either haulers or producers to seek compensation for extraordinary damages caused to the roads, to adapt them to better meet needs relating to heavy oil hauling; and
6) Amend *The Rural Municipality Act, 1989* to provide RMs with the authority to designate trucking routes, with or without the ability to truck higher weights.

1.0 Introduction

The oil and gas industry is a major contributor to the Saskatchewan economy in terms of employment, investment, and government revenues. The industry directly and indirectly employs about 22,000 people in the province. Provincial revenues received through Crown royalties, freehold production taxes and petroleum and natural gas mineral rights sales were approximately $684 million in the 2001-02 fiscal year, representing approximately 10 percent of government's total revenues. In 2001, the oil and gas industry made exploratory and development investments in the province that totaled approximately $1.4 billion. Total recoverable reserves as of January 2001 were estimated at 185 million cubic metres of oil (or 1.2 billion barrels) and 71.1 billion cubic metres of gas (or 2,523 billion cubic feet).

Saskatchewan is the second largest oil producer in Canada, producing approximately 20 percent of the country's crude oil from more than 20,000 oil wells. Approximately 75 percent of oil and gas rights are held by the province and are leased to private companies for development and production. Both multinational oil companies and smaller Saskatchewan and Canadian-owned companies are active in the oil and gas industry within the province. Refining and upgrading facilities in the province are among the most advanced in Canada with a refinery and upgrader located in Regina and another upgrader located near Lloydminster.

Despite being the number two producer of oil in Canada, Saskatchewan's oil pools are considered marginally economic. Compared to Alberta and British Columbia, oil wells in Saskatchewan on average produce at significantly lower rates and produce much lower quality priced oil. In order to maintain an active oil industry in the province, Saskatchewan needs to have a competitive environment. The industry is becoming more global with many players having interests around the world. As such, investment capital is very mobile. From time to time, industry identifies issues affecting or constraining investments in the province. These issues have consisted of fiscal structures, power rates and policies, municipal taxes and policies, support for research and development and regulatory complexity.

In particular, issues relating to the construction, maintenance and reconstruction of roads due to trucking associated with the movement of heavy oil in the province have been raised by the heavy oil producing industry and the Rural Municipalities (RMs) affected. The RMs from the Northwest Municipalities Association have indicated their concerns regarding roads and have requested that the province provide a forum for discussion that would include municipal representation, the oil industry and related government departments. The purpose of this forum is to examine road issues within the municipalities located in the heavy oil producing area. Although heavy oil is produced within more than 27 RMs in the province, the discussion primarily included only the 11 RMs in Saskatchewan that centre around Lloydminster. The discussion paper will:

- Examine the issues of road construction, maintenance and reconstruction within the heavy oil producing region surrounding Lloydminster, Saskatchewan;

- Examine current provincial legislation and regulations that are concerned with road maintenance, along with an example of a current working relationship in the southeast oil producing region;
- Examine the issues of road maintenance and reconstruction from the municipal and industry perspective;
- Examine other provincial and territorial methods for addressing this matter, in particular those of Alberta, and;
- Provide a number of potential options to address the road issues.

The committee discussed several issues surrounding the use of existing tax tools by municipalities. The committee was unable to reach a cc.ısensus as to whether the use of municipal tax tools should impact the criteria attached to new money for programs to deal with heavy haul road issues. The committee concluded that the resolution of issues relating to municipal tax tools, and any bearing they may have on the proposals contained in this report, is beyond the mandate of this committee.

1.1 A Primer on the Heavy Oil Industry

The heavier (greater the density) and the more viscous (resistance to flow) the crude oil, the more difficult it is to extract from the reservoir, transport and purify to market specifications. Heavy crude is produced from sand reservoirs typically 500 to 700 metres deep. These reservoirs contain oil, water and gas in varying proportions. Most heavy crude oil flows to the well bores because of the underground reservoir pressure and gas solution. However, in some situations, steam is used to improve the fluid movement in the reservoir.

There are two main technologies currently being used that improve the recovery rates of heavy oil. One is a pump technology using screw pumps that is often referred to as Cold Production technology. The second is a Thermal Recovery technology using steam.

Cold Production uses downhole screw pump technology in primarily vertical well bores. The screw pump has the capability of pumping viscous multiphase mixtures to the surface at a much higher rate then conventional plunger pumps. This production method also promotes additional sand production from the well bore. This in turn improves inter-reservoir flow towards the well bore. These wells are typically drilled on 40 acre spacing; therefore, there could be between 4 to 16 wells per quarter section of land, depending on the reservoir.

Thermal Recovery generally consists of Steam Assisted Gravity Drainage (SAGD), Cyclical Huff and Puff or Steam Flood. In each situation, steam is injected into the reservoir to heat the oil to reduce the viscosity and promote movement of the oil to a well bore. In SAGD, the steam injector and producing well bore are drilled horizontally through the reservoir in pairs with the injector a few metres above the production well bore. The injected steam then reduces the viscosity of the oil above the production well bore and gravity assists in the movement of the oil towards the production well bore. Not all reservoirs are suited for this process. Cyclical Huff and Puff is based on injection of

steam into a well bore for some prescribed period and/or volume. The well bore is then placed on a production cycle in which the hot, viscosity reduced, pressurized oil is produced (thus Huff and Puff). Eventually cyclical projects are converted to steam floods, where steam is injected continuously into one well bore within a group of wells, driving the oil to the surrounding producing wells. Generally, thermal recovery requires very thick reservoirs (greater than 10 metres) to support sufficient development economics.

Due to the limited amount of known economical reservoirs to support Thermal Recovery, Cold Production is predominately the production process in the Lloydminster area. With the Thermal Recovery process, reservoir fluids are typically pumped to surface and flowlined to nearby treating facilities about 1 to 3 kilometres away. Flowlining is possible due to high fluid temperatures, short distances and low sand production. In the Cold Production process, fluids are pumped to the surface and temporarily stored in heated production tanks. This facilitates the separation of the oil, water and sand. The sand settles to the bottom of the tank, the heavy oil emulsion floats to the top and free water (easily separated) comprises the middle. The heavy oil must be kept warm in order to flow it into tanker trucks. Each of these products is then removed in tanker trucks to facilities for further processing. The sand production, which is very variable over the production life of a well, is usually disposed of by hauling it to underground salt caverns. The oil emulsion is hauled in tanker trucks, which hold about 25 to 30 cubic metres, to a treating battery where the oil is further cleaned to meet pipeline market specifications. Once cleaned, hydrocarbon diluent is added to the oil so that it can be pipelined to markets in Canada and USA. The free water is hauled similar to the oil emulsion. The water is disposed of into salt water disposal wells located at the treating batteries or standalone locations situated in the production area. The viscosity of heavy oil and the sand production does not allow it to be flowlined like light oil production and, therefore, requires it to be trucked from the well to a battery. The following table compares typical viscosity and density of Lloydminster heavy oil to other Saskatchewan crude oils.

Parameter	Lloydminster Heavy	Swift Current Area	Senlac - Kerrobert Area
Density kg/m3 @ 15°C	982	935	972
Viscosity cSt[1]			
@20°C	16,000	290	2987
@40°C	2,000	89	630
@60°C	442	37	193

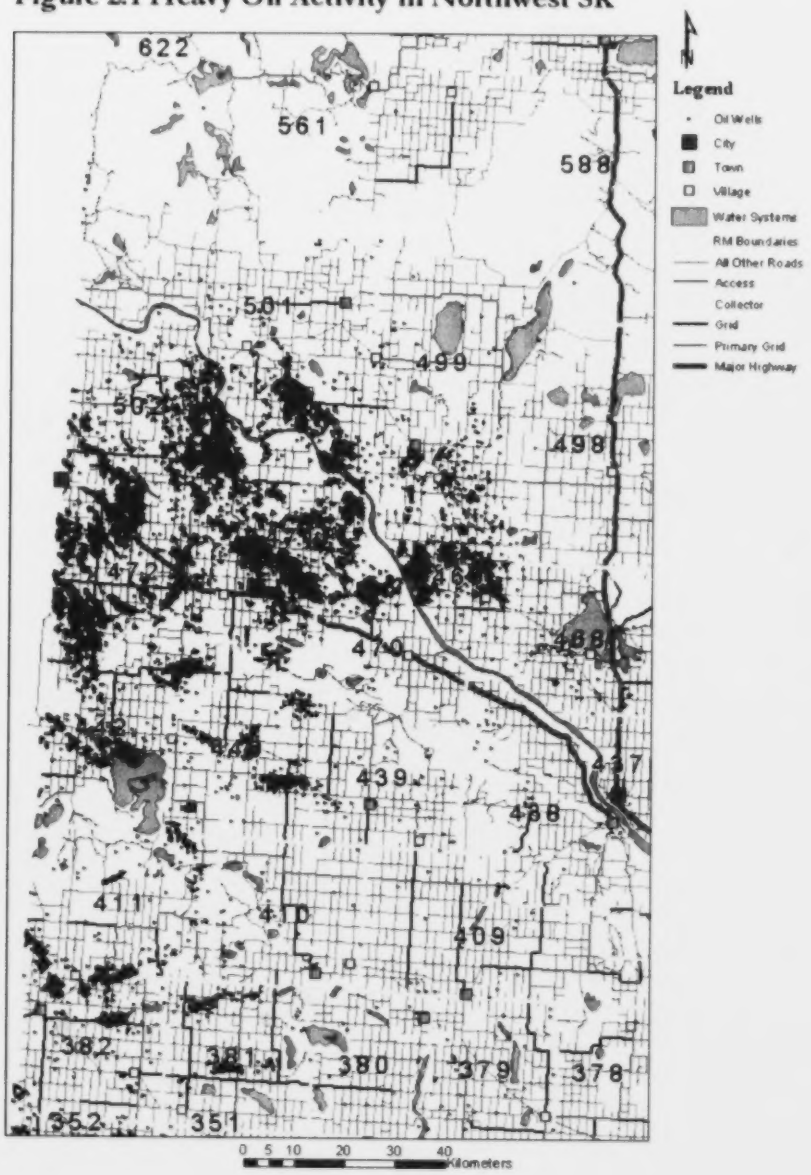
Typical reservoir temperatures would be 20 to 25 °C.
Water viscosity is approximately 1 cSt @ 20°C, therefore, heavy oil in the Lloydminster area at 20°C would be 16,000 times more difficult to flow than water.

[1] Centistokes – a unit of measure of kinematic viscosity.

In a new oil field, it is not uncommon to have anywhere from 4 to 16 wells per quarter section. Figure 2.1 provides a map that demonstrates the intensity of oil production in the region under investigation. Figure 2.2 shows typical product movement of oil, water and sand from a well. Each product type requires a different truck. For high producing wells, it is possible that each well will require two tridem-axel semi trucks per day to haul the oil and associated by-products. In addition to product movement, typical drilling activity of a new well could create 80 to 100 semi trailer movements within the 3 to 4 day drilling period. It is not uncommon to see a regional drilling program with 300 to 700 new wells per year. The nature of the industry requires that operations run 24 hours a day throughout the year, regardless of the weather. Many of the rural municipal roads that are utilized by the oil industry were never built to withstand this type of traffic, especially under adverse weather conditions. When trucks cannot drive over a road under their own power, four wheel drive tractors or caterpillars are used to pull them through, day after day. There are many instances where roads are totally destroyed in the spring or after a rainy period and it becomes impossible for light vehicles to travel them.

Municipalities have a responsibility to provide adequate roads to their ratepayers. In many cases RMs are required to rebuild roads that were adequate prior to oil industry use, but which become impassible as a result of oil truck hauling. In addition, roads are frequently required where none existed previously. The extra cost can be significant. For example, a municipality within the region under review had to repair a 5-mile section of road used by the oil industry in the spring of 2001 at a cost of $250,000. This road had adequately serviced the other ratepayers before the reconstruction became necessary.

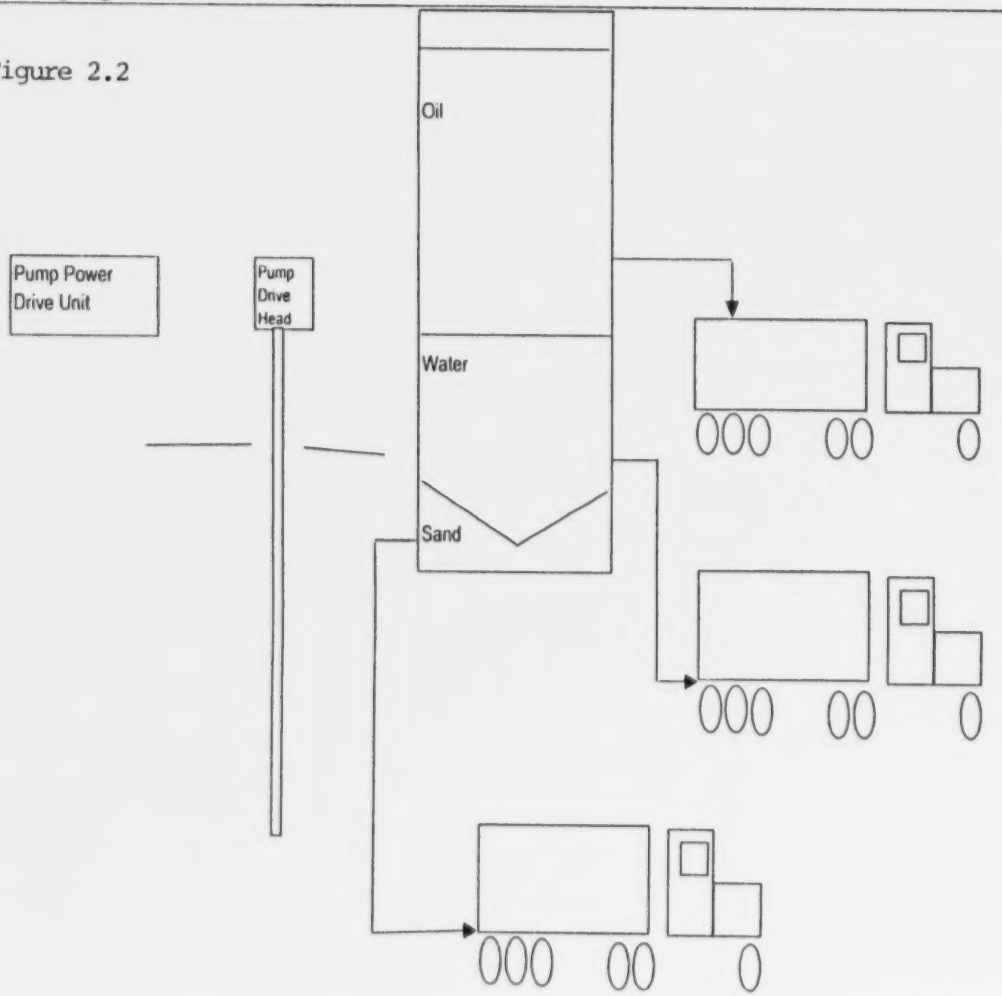
Figure 2.1 Heavy Oil Activity in Northwest SK



Oil & Gas Well information provided by Saskatchewan Industry and Resources, Subsurface Geology Branch
Road information provided by Information Services Corporation of Saskatchewan
2002 Government of Saskatchewan

Heated Storage 160 m3 max volume

Figure 2.2



Typical Average Frequency	Range	Delivered to
1 load every 3 days	1 load every day to 1 load every 5 days	Battery within 15 to 40 km
1 load every 3 days	1 load every day to 1 load every 5 days	Battery or water disposal within 15 to 40 km
1 load every 40 days	1 load every 10 days to 1 every 80 days	Sand disposal cavern within 35 to 100 km

Frequency is based on regional averages. Individual wells could differ considerably. Delivery distances could also vary per individual well and/or day.

2.0 Municipal Interests

Concerns from a municipal perspective center on how to recover the cost of road reconstruction. The RMs in the northwest region view themselves as having unique municipal road problems caused by heavy oil industry expansion in their area. The heavy oil operations generate more traffic than oilfield operations in other areas due to the inability to pipeline the oil once it is above ground. Significant volumes of sand and water are also produced from these wells with a portion being trucked. Heavy oil traffic is more intense and highly localized. There are also significant differences in the amount of traffic generated between heavy oil and agricultural product transportation.
Although it is difficult, without actual traffic counts, to determine an exact amount of traffic attributable to the heavy oil industry, there are a number of sources that provide some information in this regard.

Reports prepared by the two transportation committees with responsibilities in the NW heavy oil region deal with the unique impact that heavy oil extraction has on roads. See Appendix 1 for the executive summary of the North Central Transportation Planning Committee's (NCTPC) report. This report includes a study done in 2000 of 12 RMs with heavy oil development and states *"The ratio of commercial to non-commercial traffic is high in RMs with intense oil activities. Some roads carry almost 50% commercial traffic...Overall the 2000 counts show that the commercial truck traffic in the heavy oil RMs is in the range of 12 – 39%."*

Also, a report by the Transportation Subcommittee of the West Central Municipal Government Committee (WCMGC) identifies the road impact by heavy haul traffic. See Appendix 2 for the executive summary of this report. This April 2001 report focuses on industry shifts leading to changes in heavy haul travel patterns. It states that economic forecasts are predicting a 10% annual growth in oil well drilling activity and a 50% increase in gas well drilling activity. The combined impact of both oil and gas activities is expected to contribute to significant traffic increases in the west part of the subcommittee's planning area, including the NW RMs.

An estimation of the traffic attributable to agriculture and the heavy oil industry was also done by utilizing crop and animal production for the 15 RMs of Crop District 9B[2] and the oil and water production for the 11 RMs included in this study[3] (Table 2.1). It is estimated that the heavy oil industry has approximately 42X the number of vehicles on the roads in this region than can be attributed to agriculture.

[2] Crop District 9B includes the following RMs: 438, 439, 440, 442, 468, 470, 471, 472, 498, 499, 501, 502, 561, 588 and 622.

[3] The 11 RMs included in this study are the following: 439, 440, 442, 469, 470, 471, 472, 499, 501 and, 502. RM 411 has not been included in these estimates as most of its oil is flowlined. In most of the other 10 RMs, a small amount of production is flowlined.

Table 2.1 Comparison of Agriculture and Heavy Oil Based Traffic (2001)

Agricultural Estimates Crop District 9B		
	Agricultural Production	**Cattle**
Production	962,179 tonnes	144,230 animals
Truck Hauling Capacity	35 tonnes/truck	45 animals/truck
# of Trucks for the Year	27,491	3,205
Total Agricultural related vehicles	**30,696**	
Heavy Oil/Water Estimates 11 RMs		
	Oil (cubic metres)	**Water (cubic meters)[4]**
Production	7,712,877	17,900,017
Truck Hauling Capacity	20 m^3/truck	20 m^3/truck
# of Trucks for the Year	385,644	895,001
Total Heavy Oil related vehicles	**1,280,645**	

Through reports submitted by the RMs, several factors that increase costs for road maintenance and construction in heavy oil RMs were identified, as follows:

- Wells are dispersed throughout the municipality and therefore the RM must maintain and construct a large number of roads throughout the whole RM so that access to all the well sites is available.
- New wells are being developed in areas where no roads previously existed, and therefore a considerable amount of new construction and maintenance is required due to the increased number of kilometres of roads that have to be maintained.
- Because the industry operates continuously and regardless of weather, the roads are more prone to damage and therefore require more maintenance.
- The costs of road maintenance are higher on heavy haul roads for three main reasons:
  - Roads that sustain heavy hauling require 6 times the amount of grading;
  - A larger amount of gravel is required on roads that have heavy hauls; and
  - Construction costs are increased, as extra excavation is required of the old roadbed.
- For example, the RM of Wilton 472 indicated the following differences in cost between non-oil and oil industry used roads:
  - Grading costs $260.00 versus $1,625.00 per mile per year.
  - Gravel costs $404.00 versus $969.60 per mile per year.
  - Farm access road requires 0.3 metres of select clay on roadbed and heavy haul road requires 0.6 metres.

[4] Not all of the water is trucked. A significant amount is injected back into the wells. Regional averages suggest that for each load of heavy oil hauled there is 1 load of water hauled.

- The RMs generally do not receive any property tax revenue from newly drilled wells until 2 years after they have been drilled, once the new assessment has been added to the assessment roll; however, there is a $450 well licensing fee. RMs state this does not provide a revenue source that is comparable to the expenditures required for maintaining, constructing or repairing the roads required by the oil industry.
- The gross vehicle weight and number of axles permitted on the provincial road system causes problems on the municipal road system. The older roads were never constructed for high volumes of traffic at heavier weights. The dust problem is also magnified with increased traffic volumes.
- Dust is a major issue in heavy oil RMs. Productivity in land adjacent to heavy traffic seems to be impacted by the increased dust that covers the crops and pastureland. Animals that are pastured next to these roads suffer from breathing ailments, which has the potential to affect mortality rates in the herds. Some municipalities (e.g. Eldon) may be facing statements of claim for lost productivity if these issues are not addressed.
- During the winter, the heavy trucks pack the snow into ice, resulting in extra expense to run the graders to scrape the ice or to hire a contractor to sand the roads.

WCMGC's Transportation Subcommittee's 2001 report also provides analysis of the incremental cost resulting from projected increases in heavy haul traffic. Note that WCMGC analysis includes 8 of the 11 RMs included in the Oil & Gas Committee's review. WCMGC projected increases in heavy haul traffic on 3,825 km of roads (provincial and municipal) in the west central area. Of this, 1,420 km are in the area of oil and gas activity, with varying surface type (i.e., pavements, TMS, gravel) and condition. The incremental cost due to increases in heavy haul traffic over the 5 year period of 2001 to 2006 is expected to be $46,619,000. This amount reflects both the treatment expenditures and the changed asset valuation (level of service) expected from traffic, road type, condition, and operations practices to maintain and upgrade the 1,420 km of roadways.

On the revenue side, it is estimated that municipalities receive between $300 to $450 per well in municipal property taxes per year. In 2001, approximately $5 million was provided to the eleven RMs in municipal property taxes from the oil and gas industry (Table 2.2). Another source of revenue for the municipalities is through well licensing fees. Under Clause 213(1) (b) of *The Rural Municipality Act, 1989*, municipalities can charge, by bylaw, oil and gas well drilling contractors a one-time license fee for each well drilled within a municipality. Presently the fees are set by regulation and permit municipalities to charge a maximum of $450 for the drilling of an oil or gas well and $225 for each hole drilled to obtain geological and structural information.

Table 2.2: Oil and Gas Industry Property Tax Revenues (Year Ending 2000)

Rural Municipality	Municipal Taxes	School Taxes	Total Taxes
411 Senlac *	305,698	869,056	1,174,754
439 Cut Knife	29,723	47,061	76,784
440 Hillsdale	278,931	427,967	706,898
442 Manitou Lake	317,831	484,715	802,546
469 Turtle River	428,330	497,931	926,261
470 Paynton	168,602	218,165	386,767
471 Eldon	758,125	1,514,319	2,272,444
472 Wilton	851,555	1,589,411	2,440,966
499 Mervin	130,068	186,581	316,649
501 Frenchman Butte	730,105	1,241,993	1,972,098
502 Britannia	1,302,596	1,177,259	2,479,855
Total	**5,301,564**	**8,254,458**	**13,556,022**

* Commercial mill rates (with mill rate factors applied) taken from the 2000 rural mill rate return

Indications are that these combined amounts may be adequate for maintaining a road that is already at oil industry standards, but do not provide enough revenue for reconstructing destroyed roads to support the oil industry. Municipalities currently utilize different tax tools available to them to increase the property tax rate, but this may not provide enough revenue and could discourage economic development in the region.

The following points summarize the various views of the RMs in the heavy oil-producing region in the northwest:

- The RMs in the region welcome the oil industry, as it is a huge economic engine that provides jobs and wealth for the RMs (e.g. the RM of Eldon 471 has no unemployment, largely attributed to the oil industry). The RMs credit the oil industry for the continued success and even growth of many RMs within the region.
- The RMs believe that both local and provincial government should support and encourage oil industry growth within the region and feel that the key factor required to sustain the industry is to provide adequate road infrastructure to allow the product to be moved efficiently through the region. The roads are critical to the continuation and expansion of the industry.
- In order to create and maintain the required transportation infrastructure, the RMs feel that more funding is required from the province to assist the municipalities. They suggest that the conditional grants available to RMs should be increased and propose that the annual contribution should be a percentage of the annual royalties received from the region.
- The RMs argue that the cost to provide transportation services in the region is increasing at an alarming rate, due to the increased traffic associated with new well development and a more rapid deterioration of road infrastructure within each RM.

- Because the road system is considered the 'pipeline' for heavy oil, the roads must be sufficiently maintained and at a better class of road construction to be able to handle the amount and type of traffic on the roads. The increased traffic load also requires maintaining a dust free surface at the major arteries within a municipality to minimize the impact that dust has on the health of humans, animals, crops and pastures close to high traffic roads. This type of infrastructure is extremely expensive to construct.
- Some municipalities have no oil development and therefore no property tax revenue from the industry, but they do have trucks travelling through their region to access batteries, sand and water disposal sites. The municipality therefore experiences similar road usage and associated maintenance issues but has no source of compensation.

It can be concluded that the RMs' expectation is neither to place the financial responsibility for road reconstruction and maintenance solely on the provincial government nor on the oil companies, but rather that the municipalities are provided with some assistance with the cost of road reconstruction. The municipalities in the Northwest Region do feel that they are paying for the infrastructure that provides the province with a very large pool of revenue. They would like to see the provincial government assist them with the development of an agreement that would see some sort of cost-sharing for road reconstruction, repair and maintenance, other than that available under *The Road Maintenance and Restoration Agreement Regulations, 1990.*

3.0 Oil Industry Interests

Oil company representatives provided the Oil and Gas Committee with a summary of their transportation related issues and concerns during a meeting in Lashburn on June 6th, 2002. The oil industry stressed the importance of the transportation infrastructure, as the road system in the heavy oil region is considered to be the pipeline for continued development of the oil reserves in this region. As Table 3.1 indicates, RMs that produce highly viscose oil rely on storage tanks to hold the oil that is then truck transported to production facilities.

Table 3.1 Percent of Oil Wells with Tanks

Rural Municipality	Total Number of Heavy Oil Producing Wells in 2000	Total Number of Wells with Tanks on Location	Percentage of Wells with Tanks on Location
Newcombe #260	4	2	50%
Chesterfield #261	111	12	11%
Kindersley #290	27	21	78%
Milton #292	168	90	54%
Winslow #319	9	8	--
Oakdale #320	513	167	33%
Prairiedale #321	117	98	84%
Antelope Park #322	337	211	63%
Grandview #349	5	5	100%
Progress #351	112	101	90%
Heart's Hill #352	569	282	50%
Grass Lake #381	99	75	76%
Eye Hill #382	209	91	44%
Round Valley #410	1	1	100%
Senlac # 411	413	207	50%
Cut Knife # 439	5	5	100%
Hillsdale # 440	434	333	77%
Manitou Lake # 442	264	175	66%
Meota # 468	0	0	--
Turtle River # 469	354	322	91%
Paynton # 470	132	124	94%
Eldon # 471	1,068	803	75%
Wilton # 472	748	616	82%
Mervin # 499	122	122	100%
Frenchman Butte # 501	483	425	88%
Britannia # 502	638	578	91%

"Cold Production" (production of heavy oil) currently has no economical flowlining technology, because of the high viscosity and sand production. This results in daily traffic volumes, for seven major companies, estimated at between 1,180 to 1,450 hauls per day. Tables 3.2 and 3.3 provide estimates for traffic volumes and support operations, which demonstrate the magnitude of traffic generated by the heavy oil industry. These projections are for seven major companies operating in the Lloydminster area only, and do not include the numerous other companies producing in the region.

Table 3.2: Traffic Volumes Generated from Product Extraction by Seven Companies

Product Being Hauled	Estimated Range of Loads Per Day
Oil	600 to 750
Water	500 to 600
Sand/Slops	80 to 100

Table 3.3: Traffic Volumes Generated from Support Operations

Support Operation	Estimated Movements
Well Operators	Minimum 1 visit to each well per day (3500 to 4000 active wells)
Service Rigs	25 to 35 movements per day
New Lease Construction	12 loads per well average (More if clay capping is required)
Drilling	80 loads per well during 3 to 4 day period (300 to 700 wells per year, dependant on commodity pricing)

Table 3.4 provides an indication of the general operating costs for oil companies operating in the Lloydminster heavy oil area. Transportation costs (the cost of hauling product) makes up 16% of the operating costs, while royalties, property taxes and the corporate capital tax comprise approximately one third of operating costs.

Table 3.4: General Operating Costs for Oil Industry

Item	Percent of Total Operation Costs	Magnitude ($ Millions per year)
Transportation	16	$55 – 79
Propane Fuel	6	$19 – 27
Servicing	12	$43 – 61
Royalties	18	$63 – 90
Property Tax	4	$14 – 20
Saskatchewan Corporate Capital Tax	5	$17 – 25
All Others	39	$132 – 190

In general, their concerns focused on the condition of the road infrastructure, the multiple jurisdictions and related lack of consistency and the increasing demand on industry to finance the transportation system. Specifically, the following transportation issues were identified:

- The industry requires road infrastructure that supports primary load weights and traffic volumes.
- The demand on industry for infrastructure funding is increasing.
- Industry not only moves the oil produced, but also transports the associated equipment, water and sand. This puts additional stress on the road system.
- There are concerns around road safety and vehicle maintenance due to the narrow rough roads that many industry vehicles are forced to travel. The result is that drivers look for alternate routes once a road has become impassable, and the cycle continues ultimately requiring increased maintenance for both the roads and the vehicles.
- The varied approaches and opinions between the RMs, industry and other organizations in terms of cost sharing on road upgrades, maintenance, road bans and design are frustrating.

The companies identified the following as necessary for the continuation of operations within the region:

- Good quality designed and well maintained roads were identified as a pressing need, to ensure the safety, efficiency and economical movement of product, equipment and people, given the high volume of traffic present in the region.
- The industry felt that it would be beneficial to have consistent treatment between the RMs. Currently road design and use of maintenance agreements are not consistent between RMs.

The oil industry indicated their willingness to share any information (e.g. number of hauls and amounts) that may be useful in resolving the road issues. Industry recognizes the importance of safety on the roads and is working to ensure that the trucking units operate in a safe and efficient manner and are willing to work with the RMs in policing the transportation of their product. It was stressed however that the competitiveness of Saskatchewan is questionable, resulting in a price differential that does not always make Saskatchewan a profitable location for exploration and drilling. If the industry is required to increase its financial contribution for road maintenance and construction, and if the price of oil remains low, future growth of the oil industry in Saskatchewan may be limited.

4.0 Provincial Interests

The non-renewable resource industry (including the mining and oil and gas sectors) in Saskatchewan is a major contributor to the province's gross domestic product (14 % in 2000) and employment (37,000 people) in the province, mostly in rural Saskatchewan. In 2001, the oil and gas industry invested towards exploration and development approximately $1.4 billion in Saskatchewan with the value of oil and gas produced in the province approximately $5 billion. Primary areas of oil and gas development are in the regions of Lloydminster, Kindersley, Swift Current, Weyburn and Estevan.

Turning specifically to the heavy oil sector (north of Township 21), the number of producing heavy oil wells and production in the province has significantly increased over the years.

Table 4.1 Number of Heavy Oil Wells and Production

Year	Number of Heavy Oil Producing Wells	Amount of Heavy Oil Production (million barrels)
1990	3,883	23.9
1995	4,735	43.5
2000	6,960	72.9

This increase in activity is primarily attributable to improved oil recovery technologies (screw pumping and horizontal drilling) and improved economic conditions (royalties more competitive and higher prices). In 2001, the industry invested over $500 million for seismic, drilling, enhanced oil recovery, and the acquisition of Crown mineral rights. This investment resulted in over one thousand heavy oil wells being drilled in the province and approximately $100 million in heavy oil Crown royalties and freehold production taxes being paid into the province's general revenue fund. An additional $25 million was paid to acquire Crown mineral rights.

The heavy oil industry currently employs approximately 8,000 people directly and indirectly, many residing in the Lloydminster area. Sask Trends Monitor has noted that during the period of 1991 to 1996, the Lloydminster area was one of three rural Saskatchewan regions (not counting the Saskatoon and Regina regions) that grew in

population. Further, an analysis of socio-economic factors indicates that the Lloydminster and Weyburn/Estevan, both oil producing areas, are doing well. "The highest ranking regions are those that have an economic driver other than agriculture available. The top ranking seven regions have oil/gas and/or forestry resources within their boundaries."[5]

In addition to the royalties, production taxes and acquisition of mineral rights, the oil and gas industry contributes to the revenues of the province through corporate capital taxes, corporate and personal income taxes, school property taxes, provincial sales tax, and fuel tax. Municipalities benefit from the financial contributions of the industry indirectly through its share of grants from the province's general revenue fund, as well as directly in the form of property taxes and licensing fees for well drilling. Individual landowners are paid for the lease of surface lands and freehold mineral rights. Also, individual oil and gas companies often sponsor community events.

The oil and gas industry has expressed concern with respect to the regulatory burden and lack of consistency of treatment by rural municipalities in Saskatchewan:

- the requirement to obtain approvals and permits from both the province and municipalities involved;
- the use of variable mill rates; and
- the use of road haul agreements.

The Action Committee on the Rural Economy (ACRE) noted that not all rural municipalities are applying their various rules and regulations in an equitable manner and that some rural municipalities have excessively taxed the oil and gas industry[6]. Furthermore, there are often different rules and requirements among municipalities that can be confusing to operators working in more than one municipality. The oil and gas industry asks that municipalities apply their tax tools and service fees in a fair and consistent manner.

Because the productivity of the oil and gas industry in Saskatchewan is considered marginal compared to other jurisdictions, industry returns are not as lucrative as in other jurisdictions. Appendix 3 illustrates the range of productivity rates for heavy oil wells. It is essential that for Saskatchewan to be competitive, the governments both at the provincial and local level work with the industry to reduce the number of irritants impeding the development of the province's resources and grow this important sector of our economy. The 2001 investments in Saskatchewan represent approximately 10% of the total western oil and gas investments. An objective is to have an investment climate in the province that would significantly increase this percentage. Recognizing this, the province announced major royalty and tax changes for the province's oil and gas industry

[5] Sask Trends Monitor, "ACRE Regional Profile/Database", Presentation to the Action Committee on the Rural Economy, September 6, 2000

[6] Final Report of the Action Committee on the Rural Economy (ACRE) March 2002 pg. 34

on October 7, 2002. However, the taxes and levies applied by municipal governments remain a competitiveness issue with the industry. Appendix 4 shows a relative comparison of the amount of royalties and taxes estimated payable by the oil industry in both Alberta and Saskatchewan that relate to the specific types of oil wells drilled.

It should be noted that the amounts collected by the province through its royalty/tax systems are impacted by the costs of trucking oil in the province. The Crown's share of oil is priced at the wellhead. In determining this price, trucking costs incurred to move the oil from the well to the point of sale are deductible.

5.0 Saskatchewan's Haul Road Maintenance Agreements

5.1 Haul Road Maintenance Agreements

Under the former *Rural Municipalities Act*, RMs had the authority to require road maintenance agreements and compensation from haulers since 1981. Between 1981 and 1989, RM councils could establish any rates they wanted to compensate for road damages resulting from bulk hauls. Maximum rates for incremental road maintenance and loss of road life were first set in regulation, pursuant to section 190 of *The Rural Municipality Act, 1989,* in 1990. The maximum rates that could be incorporated into agreements were established in response to complaints from the trucking industry about inconsistent treatment by some rural municipalities and extreme variation in rates among municipalities.

In 1995, and again in 1999, a committee comprised of representatives of the trucking industry, municipal and provincial governments reviewed the rates established in this regulation and the government made changes in accordance with the committee's recommendations. The fees RMs may charge through a Haul Road Maintenance Agreement are intended to compensate the municipalities for extra road maintenance costs and loss of road service life due to significant hauls of bulk goods and materials on municipals roads. The regulation is intended to protect the trucking industry against unreasonable haul rates being established by each municipality while providing municipalities with sufficient compensation for loss of road life and extra maintenance costs. The regulation also provides municipalities with a mechanism to receive reasonable compensation for extraordinary road construction and maintenance costs resulting from bulk hauls. Municipalities are thus able to meet their financial obligations to provide road services in these circumstances without burdening taxpayers with increased taxes.

Section 190 of *The Rural Municipality Act, 1989* provides provisions for RMs to charge a fee for incremental road costs resulting from bulk hauls. The Act gives an RM council authority to require haulers or receivers of bulk goods to enter into a Haul Road

Maintenance Agreement to compensate the RM for incremental road maintenance and loss of service life costs resulting from the haul(s). These charges are fees for incremental maintenance and loss of road life, not road taxes.

Sub-section 190 (3) of the Act provides authority for enforcement if a hauler continues to haul without an agreement after the municipality has served notice that an agreement is required. Sub-section 190 (4) and sub-section 413 (5) of the Act provide for penalties of up to $100 per vehicle per day for contravention of section 190. Sub-section 190 (2) of the Act provides authority for the Minister of Government Relations to impose an agreement, at the request of either party, if an agreement cannot be negotiated.

The maximum rates set in the regulations are based on the RMs' average road maintenance and construction costs. The share of these costs paid by the province through Rural Revenue Sharing was excluded when calculating the rates. Given that road construction and maintenance costs have risen, that the assistance available to RMs through Revenue Sharing has been significantly reduced and that the program has been significantly restructured since 1995, it was felt that a review of the rates in 1998 was appropriate.

The maximum allowable rates for haul road maintenance agreements were reviewed in the fall of 1998 and amended in 1999. The amendments included:

- A 12.1% increase in the maximum allowable rate for incremental road maintenance required as a result of bulk hauling;
- A 16.5% increase in the maximum allowable rate for loss of road service life as a result of bulk hauling;
- Extension of the winter haul period by two weeks in the spring and two weeks in the fall;
- A different winter haul period may still be negotiated by the municipality and the hauler; and
- Authority for a rural municipality to waive the minimum compensation contained in the regulations.

Municipalities have indicated that the maximum allowable rates still do not cover the damage caused by continued heavy loads on municipal roads. At its mid-term convention in November 2002, SARM's resolution "to have the volume distance rates adjusted upward to accurately compensate RMs for the road damage that occurs" was carried. SARM will take this resolution to government for a response.

5.2 Oil Industry and Haul Road Maintenance Agreements in Saskatchewan

Haul road maintenance agreements are to be negotiated between the RM and the hauler or receiver of bulk goods. The fees charged should only cover incremental costs, not the normal maintenance and wear on the road. Although the regulations do not stipulate that the taxes paid to the rural municipality by the hauler or receiver should be taken into

account when negotiating the rates, municipalities may consider these amounts when setting the rates. There are two types of possible road maintenance agreements where either the municipality or the hauler is responsible for the maintenance of the road. The typical arrangement is municipal responsibility for the maintenance, mainly due to liability issues associated with external upkeep.

There are oil-based RMs that utilize the Haul Road Maintenance Agreements and the RM of Lomond No. 37, located in the southeast, provides a good example. Lomond has been able to successfully utilize the Haul Road Maintenance Agreements to fund road maintenance and reconstruction as a result of oil industry impacts on rural roads. In Lomond most oil is transported through the pipeline system, but there is a percentage that must be trucked. Lomond has allowed trucking companies to utilize any road within the RM. The municipality wished to recover the spread between what they received from the oil industry in municipal property taxes versus the 92% of truck traffic they generate on the roads resulting in decreased road life and increased costs of maintenance. To recover the costs associated with the damages caused by oil traffic, the RM chose to assume a 4 mile average hauling distance and apply the maximum rates under the 1995 rate regulations. Under the Haul Road Maintenance Regulations, a municipality can enter into an agreement with either the hauler or receiver of goods. Lomond has agreements with the trucking companies (10 in total) whereby the RM charges 15.36¢ per m^3 hauled of liquid (oil and water) and 20¢ per m^3 hauled of granular (gravel or sand). This figure is derived by the following formula:

Volume hauled X (4 miles X 3.84¢) OR (4 miles X 5¢)

The trucking companies keep track of the volumes they haul in order to receive payment from the oil companies for whom they are transporting. They fill out a simple form and send a cheque to the RM on a monthly basis. There is very limited administration for either the trucking company or the RM.

In return, Lomond has created a bylaw that allows over weight hauling on their roads, and does not implement seasonal road bans. The rationale is that approximately 98 oil trucks are on the roads daily and if these companies were to haul legal weights, this number would approximately double, increasing road damage and decreasing road safety. As part of the by law, all trucking companies are required to have a haul road maintenance agreement with the RM in order to have an over weight permit. This helps to ensure compliance from the trucking companies.

Despite Lomond's successful application of the regulations, there are several situational differences between light oil production in southeast Saskatchewan and that of the heavy oil produced in the northwest. As a result, the northwest RMs say they find it difficult to apply *The Road Maintenance and Restoration Agreement Regulations, 1990*. In southeast Saskatchewan most of the oil fields are flowlined, meaning that a well's produced emulsion is sent by pipe in the ground to a central collection point, either a satellite or a battery. If the emulsion is being collected at a satellite, the satellite is also flowlined to

the battery for processing at that location. From the battery, the wastewater is usually sent via pipe back to a well to be disposed of in the ground. The clean oil is usually shipped on a sales pipeline such as Enbridge's or may be hauled to an alternate sales point. Most of the road maintenance agreements stem from exceptions to this scenario. For example, when a company collects their emulsion to a central point that has tanks but they do not have processing facilities there, they would then have to truck the load from the tanks at that site to a processing facility at another location. As a result, the heavy haul traffic on southeast roads is approximately 98 trucks per day versus the 1,036 trucks that the heavy oil RM of Eldon has.

In contrast, the characteristics of the very heavy oil emulsion located in the northwest require tanking and trucking as the typical method of moving emulsion to a battery site. The emulsion is too thick and viscose to move down a flowline so it is produced at the well site into a tank(s) on the site. These tanks are visited by trucks that load the emulsion and transport it to a battery site somewhere nearby where it is unloaded for processing. Once processing is complete, the oil and water are handled similarly to southeast Saskatchewan.

The RMs and industry in the northwest heavy oil-producing region do not view *The Road Maintenance and Restoration Agreement Regulations, 1990* as an effective method for recovering extraordinary road damages. Without amendments to the regulations, they argue that attempting to calculate the gallons per kilometre hauled and assessing a rate would be a time consuming task for both the municipality and the oil companies. Also there is the issue of what type of vehicles apply to these regulations. Currently, these agreements are used to derive extra funds from companies that consistently visit the well site to haul oil or water. They do not capture the traffic generated from well servicing companies, well development companies or others as the municipality has no way of determining their road use. This creates inequities in the treatment of firms.

5.3 Past Examinations of the Haul Road Maintenance Agreements in Saskatchewan

In 1993, a discussion paper Financing Bulk Haul Roads was completed by Municipal Affairs that determined some general findings with regards to the legislation that allows municipalities to recover costs for road repair and reconstruction. The report concluded that the legislation that authorizes municipalities to recover road impact costs of industries generating bulk haul traffic was at that time fragmented and complex. Thus while a range of effective measures can be used, municipalities may require education and information on the choices open to them. It is likely that many municipal council members and administrators are not aware of the full range of cost recovery legislation open to them. Often municipalities that are host to bulk haul industries (like oil and gas or grain) are hesitant to levy road maintenance costs or impose new road costs on the developer out of concern that the firm may relocate its facility resulting in loss of revenue to the municipality. Enforcing Haul Road Maintenance agreements is an issue for

municipalities, especially in regions where there is a large number of oil wells per quarter section, where ownership of those wells changes on a regular basis and where the number of trucks exceeds 1 per day per well.

The discussion paper identified several positive and negative features associated with the acts and regulations that allow municipalities to recover costs of road reconstruction and maintenance, as outlined below.

The Rural Municipality Act, 1989 and *The Road Maintenance and Restoration Agreements, 1990* have several positive aspects including:

- They permit recovery of maintenance/reconstruction costs from haulers and receivers of bulk haul goods;
- They permit rural municipalities to recover road maintenance/reconstruction costs from a hauler or receiver of bulk goods in respect of an industry situated in another municipality;
- They provide a maximum fee structure; and
- They provide arbitration or appeal mechanisms whereby either the municipality or hauler/receiver can appeal to the Minister of Government Relations to impose a fee schedule within the terms of the regulations.

There are some limitations within these regulations including:

- The regulations do not provide any benefits to northern or urban municipalities;
- Enforcement is problematic;
- There is no provision for cost recovery of new roads (although *The Planning and Development Act, 1983* can be utilized for this purpose); and
- The regulations do not specify that the oil producers (the shippers) can be party to the agreement.

The issues surrounding Haul Road Maintenance agreements have been discussed previously, through the pre-existing Oil and Gas committee. The Oil and Gas Committee at that time was comprised of representatives from the Canadian Association of Petroleum Producers, Small Explorers and Producers Association of Canada, Saskatchewan Association of Rural Municipalities, Saskatchewan Assessment Management Agency and the then two government departments of Saskatchewan Municipal Affairs, Culture and Housing and Saskatchewan Energy and Mines. The committee had been struck to address concerns primarily relating to legislative issues, marginal well adjustment policies, road maintenance agreements and mill rate factors and their application. The main concern as expressed by the oil industry at that time was the fair and equitable use of the Haul Road Maintenance Agreements (RMA) by the RMs. There were several options discussed to address these concerns, as outlined below, along with the associated considerations.

Options	Considerations
Company/individual pay only the amount by which the RMAs exceed the municipal taxes already paid by the company/individual	Administration problem for the shipper is currently not a party to RMAs.
Municipalities apply to government for oil traffic damages to be paid from a newly established "road fund".	Where will the revenue for the fund come from? Administering the applications could be difficult.
The maximum rates set out in the RMA regulations are reduced based on the level of taxes already paid by the company/individual relative to the average amount paid by all taxpayers in the municipality.	Administration problem for the shipper is currently not a party to the RMAs.

In the end, the committee was unable to reach a consensus on how to best address the concerns expressed.

Rural Municipal Survey on the Use of Road Maintenance Agreements

More recently, the Oil and Gas Committee surveyed the RMs on their use of Road Maintenance Agreements, requesting information regarding what industries the agreements are with, the rates that are applied, difficulties in applying the agreements and other general comments. Because the survey did not employ standardized questions it is not possible to provide a statistical analysis of responses.
The following points provide a summary of the comments received from the RMs. They have been divided into general comments, difficulties within the current legislation and regulations, recommendations for changes, various ways in which the RMAs are applied and the industries with whom the agreements are held.

General Comments

- The agreements should be consistently applied across all RMs.
- The RMAs bring in limited revenue but they do provide an opportunity to direct traffic by keeping heavy loads off of sensitive bridges and to schedule maintenance on a more regular basis.
- There are equity issues with RMAs, as everyone using the road should have to pay (industry and agriculture).
- It is helpful to work with companies to get compliance from truckers (if they do not follow the RMA rules or enter into RMAs then the company doesn't pay them for their haul).

- It is best to have agreements with the company not the hauler.
- Some RMs chose to have agreements only with those companies that are not ratepayers, the rationale being that they do not receive any compensation through commercial property taxes.

Difficulties within the Current Legislation and Regulations

- It is difficult to ascertain how much is hauled and for what distances.
- The current rates do not cover the actual costs of maintenance.
- The current RMAs are difficult to administer and enforce (especially for speed and road bans).
- It would be helpful to have guidelines for enforcement.
- One form for all types of hauling would make it easier to administer.
- The province does not provide the enforcement that the legislation states it can.
- There is not enough compensation for dust control and it should be the responsibility of the hauler.
- It is difficult to get participation and compliance from companies.
- There is an inequity between summer and winter haul rates, given that winter is not always between the dates specified in legislation. When there is no freeze up the damage is the same as during the summer and the compensation rate is half.
- There needs to be clarification on which haulers and what volumes should be subject to the agreements.

Potential Changes

- The ability to collect a bond from the contractor should be included.
- Repairs should be done within 30 days of damage.
- It would be simpler to have an average standard distance and apply a rate for that distance to the volumes hauled.
- It would be helpful to have a mechanism to verify the haul amounts that are reported to ensure accuracy.
- It would be helpful to have the legislative authority to designate truck routes.
- Amendments to the agreement regulations should be made that will allow flexibility in the use of road maintenance agreements.

Various Ways in Which the RMAs Are Applied

- RM 106 applies a straight 5¢/mile hauled.
- RM 65 applies a mill rate factor of 1.275 on all commercial properties in lieu of agreements.
- RM 189 applies a 2.5¢/cubic yard/mile for royalty and 3.0 ¢/cubic yard/mile for road maintenance. They also videotape the road before it is used.
- RM39 has an agreement during the drilling phase where they charge $100/mile for the duration of development and/or abandonment to recover the cost of increased traffic to the site.

- RM 76 creates a designated route and has agreements with haulers using that road.
- RM 284 has agreements with the potato industry there where they have created a fee structure of $4/seeded acre.
- RMs of 121 and 122 have worked with companies to devise truck routes and as long as they stay on that route, there is no maintenance agreement. The companies also agree to stay off the roads when conditions warrant.
- RM 218 requires agreements with any haulers over 1000 cubic yards for aggregate. For private businesses they charge 3.43¢/ yard/mile for extra road maintenance and 2.94¢/ yard/mile for loss of road life.

Industries with Whom the Agreements are Held

- Of the responses received, the majority (57) of road maintenance agreements are held with the Department of Highways and Transportation and/or with gravel haulers.
- Only 11 RMs reported having agreements with oil industries.
- Approximately 10 RMs have agreements with forestry industries.
- 5 RMs engage in road maintenance agreements with intensive livestock operations (ILOs).
- There are a number of miscellaneous agreements held with a potato producer, concrete industry, SaskPower, and a flax hauler.

6.0 Other Government Programs to support Road Maintenance costs for Municipalities

6.1 Department of Highways and Transportation

6.1.1 General Information Regarding Trucking in Saskatchewan

Permitting

Non-divisible overweight and over dimension loads are permitted through an SGI permit office for permits that vary from single trip to annual. Annual permits are not restricted to Saskatchewan companies. Of the permits issued in Saskatchewan, SGI estimates that they handle 98% of them. In some cases the companies also have to get permits from the RM, but in most cases they do not. The RMs have the authority to issue permits for up to primary weight. This portion constitutes the 2% of permits not issued by SGI.

In the early 1980's, pursuant to Section 51 of *The Highways & Transportation Act,* the Minister of Highways and Transportation authorized municipalities to issue permits for overweight use of municipal roads pursuant to Section 36 of *The Highways & Transportation Act.* Where a municipality chooses to issue permits pursuant to Section 36 of *The Highways & Transportation Act,* rural municipalities may charge a fee that shall not exceed an amount determined by the Minister of Highways and Transportation. The current maximum fees that may be charged are $25 for a single trip permit and $100 for a

multi-trip permit. *The Highways & Transportation Act* does not set out the time frame for the permits and as such the RM can determine the length of time to which the permit will apply. While there are some rural municipalities that issue overweight permits, the vast majority does not. For example, the R.M. of Britannia No. 502 issues monthly multi-trip overweight permits at the maximum fee, allowing truckers to haul primary weights on all municipal (secondary weight) roads.

Manitoba issues permits through its Department of Highways. These range from single trip permits to annual permits. Annual permits are only issued to Manitoba registered carriers. The RM issues all permits on RM roads.

Alberta issues permits ranging from single trip permits to annual permits. Permits are not restricted to Alberta companies. The county must be phoned if their roads are used, but the permit office issues the permit (the county does have the authority to refuse the trip due to road conditions). All fees go to the provincial minister of Finance.

Weight and Dimension Regulations

The following section provides general information relating to Saskatchewan Vehicle Weights and Dimensions regulations. Under the authority of *The Highways and Transportation Act, 1997*, maximum vehicle weights and dimensions regulations are established for several reasons, including:

- Maximum gross vehicle weights are necessary for protection of bridges.
- Maximum weights on axles or axle groups are necessary for the protection of bridges and pavements.
- Maximum tire weights are necessary for the protection of pavements and roadbeds.
- Maximum dimensions are necessary for the protection of bridges, overpasses, etc. and to protect the other users of highways by allowing the safe travel of the general public.
- Internal dimension limits are necessary to ensure that vehicles are designed to achieve desired levels of stability.

In order to enforce weight regulations, all public highways are classified under one of the following categories (see Figure 5.1):

Primary Highways:

- **The primary highways allow primary weights year round.**
- Primary weights extend down the first 15 kilometres along a secondary highway or combination of secondary highways and provincial roads (Community Access Roads) from the intersection with a primary highway.

Secondary Highways:

- This includes all provincial highways and provincial roads other than those designated as primary.

Municipal Highways:

- This includes public highways other than provincial highways and provincial roads. Generally, this includes all roads maintained by Saskatchewan's rural municipalities including the 600 and 700 series roads that are shown on the Official Highway Map.

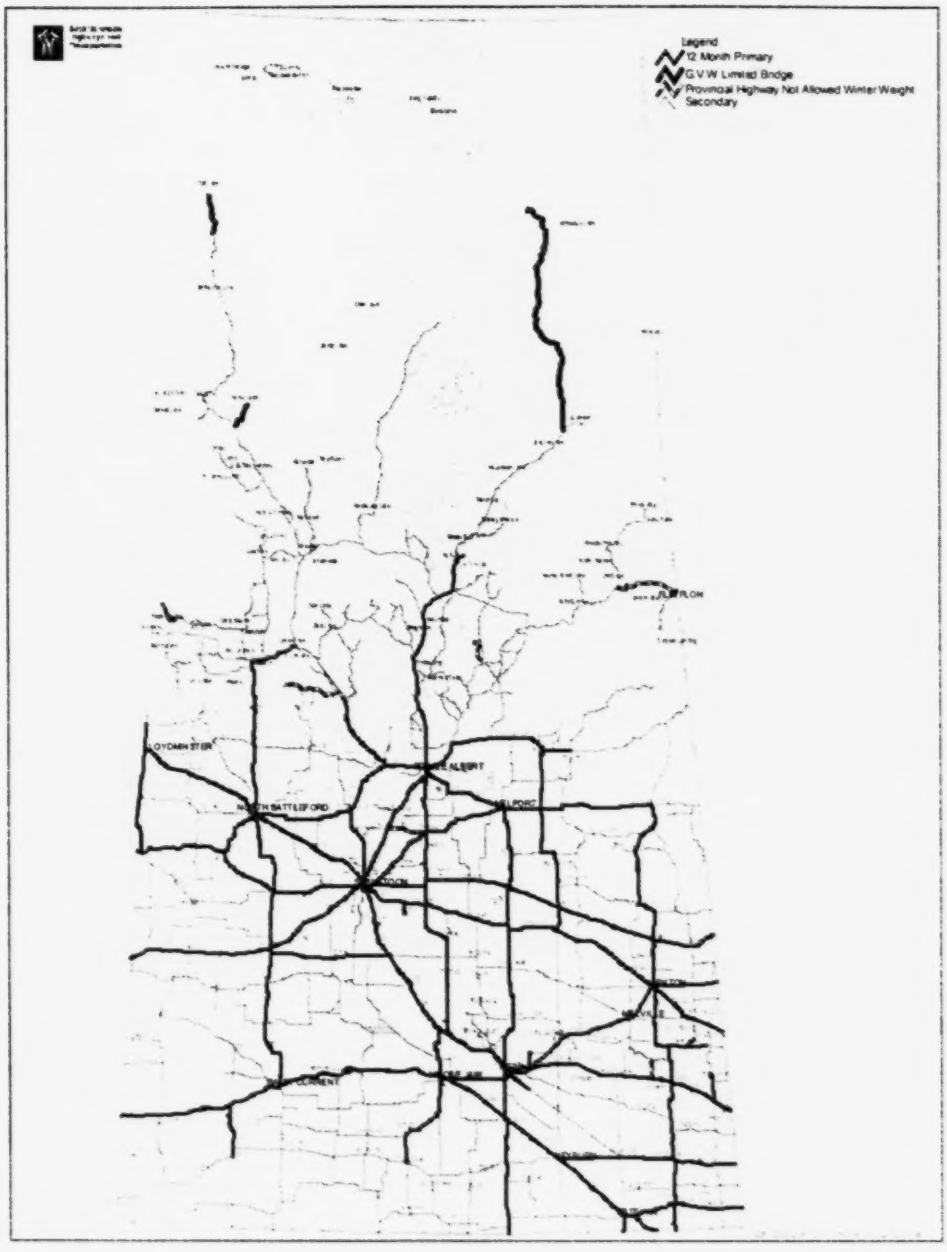


Figure 5.1 Road Weight Classification

Year Round Weight Restricted Highways:

- Certain highways have maximum gross weights regardless of their classification, the vehicle configuration or the time of year. Weight restricted secondary highways are limited to 41,500 kg.

Weights allowed on public highways are separate from the registered gross weight of a vehicle. Vehicle registration relates specifically to *The Highway Traffic Act.* A heavy vehicle is usually registered to a specific weight determined by its business and the maximum weight it will generally carry. A registration fee is collected to reflect the relative damage to the highway system for operating at that registered weight. Despite gross weights allowed on a given highway, an operator cannot exceed the registered weight, which otherwise may result in a fine under *The Highways and Transportation Act.*

Different classes of highways have different gross weight limits to reflect their design and the amount of pavement deterioration that can be accepted. Therefore, no vehicle may exceed the weights specified for specific highways regardless of the registered weight of the vehicle. Exceeding any maximum allowable weight (or dimension) may result in a fine under *The Highways and Transportation Act* or regulations.

Road Standards and Life Expectancy for Saskatchewan RM Roads

Surfaced roads are generally built based on a 15-year design. In other words, a road is constructed according to how much traffic the road will handle in the next 15 years. Most of the roads designed to this standard provide good service for many years beyond this 15-year design life, provided regular maintenance is done. Significant changes in truck traffic volumes can impact life expectancy, although there is some factor of safety in the design.

Gravel roads are built to geometric guidelines such as width, height, etc. and not to design life standards. Generally gravel roads perform well for 20-40 years, bearing in mind they do not do well under heavy loads in wet weather. Some RMs feel that after 20 or 25 years, they must rebuild the road. The view of the DHT is that this is not the case provided appropriate maintenance is done.

Roads with significant truck traffic will require more maintenance than roads without truck traffic. Provided appropriate maintenance is done, the life expectancy is not affected (although the annual maintenance costs are higher). Soil types have an impact on road conditions and life expectancy as some soil types perform better than others in poor weather and over time.

The road standard is somewhat consistent across the province. The road standard can be adjusted based on local type and amount of traffic - this is common practice in road design in Canada. There is a minimum standard required and met. For example, a main farm access is built to the same standard all across the province. Some RMs have established minimum standards, which may result in roads in some areas being built to a different standard than a road in a different area for the same type of traffic.

Mining and Forestry Contributions to Road Maintenance

There are a wide variety of contribution agreements in place with forestry and mining companies, as indicated below.
Forestry Companies:

Weyerhaeuser

- Government pays for up to 32 kilometres of road construction annually (on provincial roads and highways).
- Each party pays for their own maintenance.
- There are a number of 900 series highways that DHT pays the maintenance for that are almost exclusively for Weyerhaeuser. They are roads on crown land and therefore, by definition, public roads. These were public roads prior to the Weyerhaeuser agreement.

Mistik

- Government pays for upgrading of specific highways.
- Each party pays for their own maintenance. Occasionally and under unusual conditions, the company pays for an additional grader on a highway.

Others

- Company is 100% responsible for construction and maintenance of new roads. Upgrading of existing roads is government responsibility. (No one can be restricted from using a public highway as long as they operate within the laws of the land).

Mining Companies:

Cluff Lake

- Company paid 50% of the construction cost; Government pays the maintenance.

Key Lake

- Company paid 75% of construction cost up to $25M, 50% of construction cost between $25M and $30M, 25% of construction cost over $30M and 80% of ongoing maintenance costs north of the Churchill River.

North of La Ronge (hwys 102/905)

- Government paid 100% of construction and maintenance costs. There is a trucking partnership in place to allow higher vehicle weights. DHT receives 75% of the haul savings and the companies receive 25%. The DHT money is spent on road

improvements to Highways 102 & 905. The companies do pay for extra maintenance required for an increased level of service due to their trucking operations (extra staff and equipment).

Cigar Lake and McArthur River mines

- The companies pay 100% of construction and maintenance costs.
- These roads extend from Cigar Lake to the junction with Highway 905 and from McArthur River to Key Lake.

Esterhazy potash haul

- Company paid cost of extra surfacing to allow higher weight trucks and for extra winter maintenance to provide a higher level of service.

6.1.2 Department of Highways Trucking and Road Programs

6.1.2.1 Strategic Rural Roads Partnership Program

The Strategic Rural Roads Partnership Program (SRRPP), previously known as the Rural Roads Strategic Initiatives Fund, has been in place since April 1, 1999. The program allows DHT to work with local governments to develop initiatives and partnerships on a regional basis that manage traffic on highways being impacted by grain or resource truck traffic so that the overall level of service to rural Saskatchewan is improved.

The program follows the principles of accessibility, economic development, mobility and safety. It provides the opportunity for local partners, urban/rural municipalities, industry, First Nations and other interested parties to come forward with innovative strategies that can address local transportation challenges and still meet these principles. It facilitates partnership initiatives that support strategic management of low volume Thin Membrane Surface (TMS) highways through cost-effective, mutually beneficial arrangements with municipalities and First Nations to ensure the delivery of acceptable levels of service to local/rural residents.

Funding is targeted toward maintaining and improving levels of service while reducing long-term costs for taxpayers. The program is completely voluntary and the department only pursues opportunities with partners that are interested in participating.

The department works with local partners and Area Transportation Planning Committees to identify opportunities for commercial route management. These initiatives mitigate damage to TMS highways by creating designated truck haul routes on the municipal road system. This preserves the condition of the TMS road for cars and light trucks. The department uses the incremental funding to offset any additional costs incurred by the local municipality from the increased truck traffic.

The department may also work with local governments and industry to improve low volume TMS highways using a partnership approach to reconstructing the highway. In other instances, the voluntary partnership may involve reconstructing a community access road at the department's expense, with the local municipality assuming ownership and operation after the road has been rebuilt.

Program objectives are to:

- increase awareness of the need to consider the entire transportation system when making transportation investments;
- undertake transportation investments to maximize the potential of all existing infrastructure through partnering with rural and urban municipalities;
- sustain the highest possible level of service on as many low volume roads as possible by developing options with local partners to move heavy commodity haul to a designated municipal haul route;
- partner with municipal governments on transportation investments that minimize long term costs for the province while providing an enhanced level of service to local residents;
- partner with urban/rural municipalities and First Nations on cost-effective solutions to transportation concerns;
- develop, improve and sustain working relationships with urban/rural municipalities, First Nations and industry on transportation related issues;
- increase dialogue with municipalities and First Nations on transportation issues and reach consensus on operational transportation initiatives that maximize the utilization of existing infrastructure;
- increase the safety and efficiency of rural transportation by creating designated haul routes, which facilitate the movement of commodities and improve the condition of TMS highways for light passenger vehicles; and,
- provide an opportunity for Saskatchewan to invest in technological transportation improvements.

The SRRPP incorporates five main activities, which characterize the types of partnership projects funded through the program. They are:

- Truck Route Management;
- Truck Route Management – Incremental Municipal Road Maintenance Costs;
- Highway Construction Partnerships;
- Jurisdictional Transfers; and,
- Prairie Grain Roads Program – Strategic Municipal Corridor Development.

Table 6.1: Summary of Activity under the SRRPP 1999-00 to 2002-03

Year	Funding Allocated	Funding Spent	No. of Projects	No. of Partners	Total km
1999-00	$5.0 million	$2.5 million	19	23	185
2000-01	$4.0 million	$5.1 million	24	37	375
2001-02	$6.0 million	$6.3 million	32	51	550
2002-03	$6.5 million	N/A	21	40	470

Source: DHT

Truck Route Management

Partnership initiatives with municipalities and/or First Nations move heavy truck traffic from distressed TMS highways to alternate routes that can handle the traffic with a better level of service and lower overall maintenance costs. These initiatives provide a better level of service for all road users – heavy truck traffic will have a good gravel haul route and the province can keep the TMS as a good dust free highway for cars and light trucks. This activity generally involves spot/safety improvements, reconstruction or clay capping of the gravel haul roads so they can carry the incremental truck traffic safely. It can also include restoring a TMS highway to a dust free condition.

Truck Route Management – Incremental Municipal Road Maintenance Costs

This activity provides funding to reimburse municipal/First Nation partners for the increased maintenance costs associated with the incremental truck traffic on the alternate haul route. Once an alternate truck route partnership project is in place, more truck traffic on the alternate haul route results in more road damage and higher maintenance costs for the partner responsible for maintaining the alternate haul route. The incremental traffic is diverted to the alternate route from the provincial highway system, so the department reimburses the partners for the incremental road maintenance costs associated with the increased heavy truck traffic on the alternate municipal/First Nation roads.

Highway Construction Partnerships

Highway construction partnership initiatives cost share the reconstruction of a provincial highway with municipalities, First Nations or industry. A municipality, First Nation or industry may be willing to enter into a partnership agreement to reconstruct a provincial highway, to provide additional resources, or to provide in kind contributions such as labour, material, equipment or project management services that allows the province to accelerate a specific highway reconstruction project. Municipalities, First Nations and industries that have entered into highway construction partnerships understand that the partnership is the best option considering local and area social and economic needs and safety of the travelling public. With additional resources or in-kind contributions from a partner, more road projects can be undertaken than would be possible with only provincial resources.

With these partnerships the rural municipality may act as:

- a "contractor" using their labour and equipment to grade the provincial highway;
- as an agent for DHT where they provide project management services and grade the road using their own equipment and labour; or
- as an agent for DHT where they provide project management services and tender a private contractor to grade the road.

Municipalities are primarily involved with grading and the department responsible for surfacing. The department uses its own crews or tenders for a contractor to surface the highway. The municipality can help with surfacing by allowing access to RM pits, which can significantly reduce costs and road damage associated with gravel haul. A RM may also waive aggregate royalty fees, which results in project cost savings.

This partnership approach accesses lower construction prices that can be achieved by local governments. It also fosters local, collaborative decision making for upgrading local highways.

Jurisdictional Transfers

Jurisdictional transfers are partnership initiatives usually involving capital improvements to a part of the provincial highway system, and a municipality or First Nation then taking responsibility for operation and maintenance of that part of the highway system. In these instances, municipalities are willing to take over ownership and operation of a part of the provincial highway system after the province makes the capital investment to improve the facility. Future maintenance costs are considered the municipality's in-kind contribution to the partnership.

This type of partnership is most common on community access roads in a rural environment. In these cases, DHT rebuilds the access road to a primary grid road standard and turns ongoing maintenance and operation to the rural municipality. The municipality is satisfied with a good gravel access road and the department eliminates the annual maintenance costs on the community access road allowing reallocation to maintenance of other highways.

Partnerships have also been developed in an urban environment, most commonly with service roads in a community. In these examples, the department may provide the urban municipality with the funding to make the negotiated capital improvements (typically resurfacing). In return the urban municipality assumes ownership and ongoing maintenance costs. DHT can reallocate annual maintenance savings to other highways.

Prairie Grain Roads Program – Strategic Municipal Corridor Development

As part of the Prairie Grain Roads Program (PGRP), the province committed to investing up to $3.0 million per year on strategic municipal road improvement projects that help to manage traffic on the provincial highway system. In these cases, eligible project costs are shared equally between the province, federal government and municipality. The province will only cost share on municipal road improvements where a signed and active truck route management agreement is in place.

Provincial investment in these projects allows PGRP funding to be used for more strategic municipal road projects and promotes partnership initiatives, integrated regional planning and innovative solutions to address the challenges facing the transportation system. Truck Route Management and Highway Construction Partnerships that have been approved by the PGRP and will be funded by the federal, provincial and municipal governments show the PGRP as a partner.

6.1.2.2 Transportation Partnership Program

The Transportation Partnership Program (commonly referred to as the Trucking Program) has been in place since the 1960's and is rather unique to Canada, as other provinces do not have trucking programs to the same extent as Saskatchewan. Some provinces have small, ad-hoc initiatives such as allowing the forestry industry higher weights in the winter, as the ground is frozen so there is limited damage.

Saskatchewan's Trucking Program consists of three separate program areas: the Bulk Haul Program, the Timber Transport Program and the Energy Efficient Motor Vehicle (EEMV) Program. The Timber Transport Program was initiated in the 1960's while the EEMV and Bulk Haul Program was started in the 1970's. The Trucking Program has also been referred to as the Special Haul Program.

DHT Trucking Programs enhance truck safety, support economic development in Saskatchewan, promote the use of more efficient and road friendly vehicle technology, ensure that taxpayers are not adversely affected by the use of these vehicles and generate additional revenues for road improvement projects.

Under the Transportation Partnerships Program, a Transportation Partnership Agreement is an agreement between DHT and the industry partner, which permits the partner to haul at weights and dimensions greater than those prescribed in regulation. The industry partner is required to share cost savings with DHT by either depositing it into the Transportation Partnerships Fund or into a reserve account. As funds are built up, specific road safety and infrastructure improvements are undertaken.

Recent studies[7] have estimated that DHT Trucking Programs contribute over $60M annually to additional economic development in Saskatchewan, improve truck safety of the program vehicles by 5 times that of the regular fleet, and contribute an additional annual revenue of $2.4million for road improvements. There are currently 59 trucking agreements covering a broad range of economic drivers in Saskatchewan including forestry, agriculture, manufacturing, mining, and dry and food goods.

Money from trucking programs is held in one of two ways: by the companies or deposited into the Transportation Partnerships Fund. Companies with Reserve Accounts are required to enter into Custom Work agreements to deliver road improvement projects. Safety improvement projects required to accommodate overweight/over-dimension vehicles on the haul routes have priority for any available money in the Transportation Partnerships Fund. The following is a description of how the money is currently being spent.

Money held by the companies in reserve accounts:

1. Mining agreement involving Cameco and Cogema
   - to date, $8.6 million has been spent on Highways #102 and #905; and
   - $1.2 million expenditure is planned for Highway #102 in 2002 for 8 kilometres of surface improvement and dust treatment.

2. Key Lake mine - Cameco
   - the Beauval Project (road improvement) was completed in 2001; and
   - in 2002, spot improvements are planned on Highway #165 and dust treatment on Highway #965 for a cost of $120,000.

Money deposited into the Transportation Partnerships Fund:

- To manage funds deposited into the Transportation Partnerships Fund, an advisory board was established to provide recommendations to the Minister on how funds should be spent.
- The advisory board consists of the Deputy Minister of Highways and Transportation and members from the Saskatchewan Chamber of Commerce, the Saskatchewan Trucking Association and the Consulting Engineers of Saskatchewan.

[7] *Economic Impact of the Special Haul Programs*, Final Study Report prepared for Saskatchewan Highways and Transportation, Transportation Policy Branch by Trimac Logistics Ltd. Consulting Services, July 20, 2000; and *Special Haul Programs Safety Review*, Final Report No. 1991015.00 presented to Saskatchewan Highways and Transportation, Transportation Policy Branch, September 2000.

Accumulated revenues from Transportation Partnerships Program agreements on deposit in the Transportation Partnerships Fund at the commencement of the 2001-02 fiscal year were $3.34 million[8]. In 2001–02, approximately $2 million was spent in the following four priority areas:

1. road safety improvements,
2. traffic safety initiatives,
3. road research projects, and
4. new construction projects specifically geared towards accelerating highway twinning.

6.2 TransGas

Trans Gas pays mitigation payments to rural municipalities as compensation for wear and tear on the local infrastructure brought about by maintenance of TransGas facilities, or for any other damages which may occur as a result of TransGas activities. The company enters into an agreement with the municipality, although they are not required to by legislation. In 1997, mitigation payments of approximately $358,000 were paid to rural municipalities.

6.3 Rural Revenue Sharing Conditional Grants for Heavy Haul Roads

The Department of Highways and Transportation (DHT) designates Heavy Haul-High Volume Roads (HH-HV) which are then funded on an incremental basis under the Rural Revenue Sharing program. DHT has designated 1,327 kilometres of HH-HV roads. Roads can be designated as Heavy Haul if the road carries a minimum of 100 vehicles per day and at least 30 percent of the traffic is from heavy hauls. High Volume roads are those carrying a minimum of 250 vehicles per day. Approximately 23 percent of the designated heavy haul roads are located in six RMs in the heavy oil area in the northwest. Over the past five years, RMs in oil producing areas have received more than $11.85 million through the HH-HV road program ($3.72 million), the Canadian Saskatchewan Infrastructure Program (CSIP) and Road Preservation and Construction grants (Table 6.3). Six RMs in the NW heavy oil region have designated HH-HV roads. These 6 RMs have received 31.4% of all the provincial moneys paid out in this program to date. Of these 6, 3 RMs (471,472 & 502) have received 66.6% of the moneys allotted to this region. Of the total HH-HV roads that have been completed, 27% are located within the NW region.

Under Rural Revenue Sharing, each municipality is provided with a construction allocation as part of the road preservation and construction (RP&C) component of Rural Revenue Sharing. The amount of the grant for each RM is dependent on the number of roads in the RM and the classification of the roads, with higher classified roads such as those that carry heavy traffic receiving larger grants. Each RM has a base Rural Revenue

[8] Saskatchewan Highways and Transportation

Sharing assistance rate varying from 30 to 60 percent. If the municipality has a designated HH-HV road, they receive an additional 25 percent for HH-HV road construction or paving.

Table 6.3: Heavy Haul-High Volume Road Program Expenditure Summary for NW RMs and Total province

Year	NW RMs*	Total NW km of Road Completed	Total Cost of Project for NW RM	Provincial Share of NW Project Costs	Total # of RMs	Total km of HH-HV Roads Completed	Total Project Costs for all HH-HV Roads	Total Provincial Share of All Project Costs
1997	2 - 471, 502	10.4	$800,362	$441,259	8	41.0	$3,335,661	$1,995,792
1998	2 - 471, 502	10.4	$550,806	$340,759	8	56.0	$3,264,928	$1,990,961
1999	4 - 440, 471, 472, 499	18.0	$1,379,062	$988,600	8	42.0	$2,661,431	$1,768,300
2000	3 - 440, 471, 502	10.0	$849,200	$542,900	10	42.6	$3,602,107	$2,319,500
2001	2 - 472, 499	11.6	$991,934	$666,323	10	42.9	$3,026,984	$1,797,188
2002	2 – 469, 502	7.6	$1,100,500	$747,400	7	29.9	$2,957,802	$1,984,000
Totals		**68.1**	**$5,671,864**	**$3,727,241**	**51**	**254.4**	**$18,848,913**	**$11,855,741**

* NW RMs are 411, 439, 440, 442,469, 470, 471, 472, 499, 501 & 502

The RM must apply to DHT to construct or pave a designated HH-HV road. The RM must first use the construction allocation portion of the RP&C component of its grant, and then apply for the incremental HH-HV funding (base amount plus 25%). For example, if an RM estimates the total cost for road construction to heavy haul standard to be $100,000, and if its construction allocation is $30,000, they would receive the base plus 25% on the difference between the total estimated cost ($100,000) minus the construction allocation ($30,000), which would be $70,000.

The HH-HV Roads program is currently allocated $1.75 million each year. For 2002-03, three RMs from the Northwest region (the RM of Turtle River No. 469, the RM of Eldon No. 471 and the RM of Brittania No. 502) have received approval for funding. These projects account for over half of the program's budget allocation for this year.

In 2002-03, GRAA will provide over $3.3 million to rural municipalities to upgrade roads in areas where the oil industry is active. This includes $1.2 million to two RMs in the heavy oil area near Lloydminster and two RMs in the Weyburn-Estevan area through the HH-HV sub-program. Three RMs in the same area will receive $320,000 through CSIP and $1.84 million will be provided to rural municipalities in oil producing areas for road preservation and construction through Rural Revenue sharing.

6.4 Prairie Grain Roads Program

The Prairie Grain Roads Program (PGRP) is a $175 million federal initiative established to improve municipal grain roads and provincial secondary highways. Traffic on these essential roads has increased as a result of changing transportation policies and the restructuring of grain handling systems. The objective of the program is to provide Government of Canada assistance to upgrade some of the municipal roads and secondary provincial highways used for the transportation of grain in the prairie provinces and the Peace River region of British Columbia.

Saskatchewan participates with the federal government in the PGRP that began in May 2001. The program provides $106.8 million in federal funding to be strategically invested in grain road corridors on the secondary highway and municipal road systems over the five-year period beginning in 2001.

DHT worked with federal representatives to determine how the funding was to be allocated, with Saskatchewan's desire for strategic investment being a critical element. Focusing on strategic investment ensures that this funding is used to develop an efficient and sustainable road network to meet the grain transportation needs of the future.

Significant changes in grain transportation have had a major impact on the provincial highway system to the point where some of the rural TMS highways were becoming a barrier to the efficient movement of grain and other commodities. The province and the Saskatchewan Urban Municipal Association (SUMA) believed that the provincial highway system had the greatest need for increased investment. This led to a 70% provincial highway and 30% municipal road allocation. In total, it is estimated that $217 million in funding will be invested in strategic grain roads in Saskatchewan over the next five years. An Agreement Management Committee consisting of 3 federal, 3 provincial, 2 SARM and 1 SUMA representatives administer the PGRP.

In 2001-02, twenty-three (23) highway projects and forty-four (44) municipal projects were approved. Eighteen (18) projects were completed resulting in 219 kilometres of road improvements. In that same year, the province matched the $14.15 million provided by the federal government for provincial highway improvements and will match the planned $14.70 million contribution in 2002-03.

In 2001-02, the province also contributed $758,000, one third of the total cost, toward nine municipal road improvement projects funded under PGRP, where a provincial municipal partnership is in place to reroute heavy truck traffic from a fragile TMS to a municipal gravel road. An additional 19 grain route projects resulting in 25 highway improvement projects have been approved by the PGRP Agreement Management

Committee. The PGRP Agreement Management Committee has approved a total of 46 municipal projects (42 rural and 4 urban) for the 2002-03 construction season.
The funding for this program is allocated on the following basis:

- Three percent ($3.2 million) will go to administering the program and $1.0 million will be allocated for regional and provincial transportation planning projects.
- Of the remaining funding, 70% ($71.82 million) will be allocated to secondary highway projects and 30% ($30.78 million) will be allocated to rural and urban municipal projects.
- Canada will contribute two-thirds of the municipal project costs and municipalities will contribute one-third of project costs.
- The province will contribute equally with Canada and municipalities for improvements to municipal roads that will move truck traffic off the secondary TMS highway system, through partnerships with rural municipalities. The province's commitment to the truck traffic management municipal projects will be up to a maximum of $3 million per year.

7.0 The Oil & Gas Royalty Structure in Saskatchewan

A Crown royalty is payable to the province on oil and gas produced from lands in which the province owns the oil and gas mineral rights. For oil and gas produced from freehold lands (lands in which the mineral rights are not owned by the province), a freehold production tax is payable to the province and a royalty is payable to the freehold mineral owner. Currently approximately 30 per cent of the oil and 10 per cent of the gas in the province is produced from freehold lands.

The Crown royalty and freehold production tax amounts paid to the province are determined using the same formula except the tax rate is lowered by an additional 10 to 12.5 percentage points. With the exception of a net profit based regime that applies to a limited number of high cost enhanced oil recovery projects, the Crown royalties and freehold production taxes are:

- based on the value of the oil and gas at the point of production (at the well head);
- determined and collected on a monthly basis;
- determined on a well by well basis;
- sensitive to the amount of oil and gas produced each month from a well;
- sensitive to the drilling technology used (vertical or horizontal);
- sensitive to the vintage of each well (when the well was drilled);
- sensitive to the quality of the oil (heavy, medium or light); and
- sensitive to monthly oil and gas price movements.

There are two major components to determining the Crown royalties payable on oil produced in the province. The first component consists of determining what portion of the production from a well is the Crown's share. The second component is determining the value of the Crown's share.

In determining the Crown's share of oil produced from Crown lands, a royalty rate is applied to the monthly production rate of a well. Oil production from new wells drilled on or after October 1, 2002 in the province is subject to the basic royalty rate formula shown below.

Monthly Oil Production (m^3)	Crown Royalty Rate (%)
0 - 25.0	0
25.1 - 136.2	(C x MOP) - D
Over 136.2	$K - \frac{X}{MOP}$

Where:

The "C", "D", "K" and "X" are factors determined every month by SIR in accordance with established price sensitive policies.

The "MOP" is the total amount of oil produced from an oil well or gas well in a month.

For some wells, the basic royalty rate formula applies up to a maximum rate of 2.5% until a specific amount of oil (incentive volume) is produced from the well. Appendix 5 shows the incentive volumes that exist for the different types of wells drilled.

Example: For a vertical oil well drilled after October 1, 2002.

Monthly oil production from the well	100 cubic metres
Crown's share (royalty rate)	5%
Crown's share of oil (5% of 100 m^3)	5 cubic metres

Once the Crown's share of oil produced from a well is determined by using the appropriate royalty formula, a price has to be applied to the share (the second component in determining the royalty dollars payable). In Saskatchewan, the Crown's share is valued at the well-head. In determining the well-head price, third party charges incurred by a producer to transport oil from the well-head to the sale location of the oil can be deducted from the price the producer received for the oil. In most cases, emulsion (includes oil and water) is trucked from the well-head to a battery where the oil is sold.

The trucking costs associated with transporting the oil portion are deductible in determining the well-head price for royalty purposes.

In the example above, the producer needs to determine the price applicable to the Crown's 5 cubic metres of oil. If the producer sold all the oil produced from the well (100 cubic metres) for a price of $150 per cubic metre at the battery and the producer also incurred a trucking cost of $500 to transport the oil and 150 cubic metres of associated produced water from the well-head to the battery, the producer would be allowed to deduct for royalty purposes an amount equal to $2 per cubic metre ($500 divided by 250 cubic metres of oil and water combined) from the price received. Therefore, in this example, the producer paid royalties equal to $740 (5 cubic metres times the oil price of $148 per cubic metre) and the province contributed $10 towards the cost of trucking its 5% share of the oil. Indirectly, the province also contributed to the cost of trucking the produced water (which is part of a company's total operating costs) by implementing lower royalty structures than may otherwise apply if those operating costs were not being incurred on average.

Table 7.1 illustrates the different Crown oil royalty rates that would apply to vertical oil wells drilled on or after October 1, 2002 if the average heavy oil price in a month is $150 per cubic metre ($23.84 per barrel) and the average non-heavy oil price is $200 per cubic metre ($31.78 per barrel).

Table 7.1

MONTHLY PRODUCTION FROM WELL	HEAVY OIL (%)	NON-HEAVY OIL (%)
25 cubic metres	0.0	0.0
50 cubic metres	1.9	2.5
100 cubic metres	5.8	7.6
200 cubic metres	11.9	15.6
500 cubic metres	16.2	21.2

For purposes of this report, Table 7.2 provides as indication of the Crown royalties and freehold production taxes generated from heavy oil production in the 11 RMs centred around Lloydminster.

Table 7.2: 2000 Oil Production and Revenue Data by R.M. in Heavy Oil Areas of the Province

Rural Municipality	No. of Wells Drilled in 2000	Total No. of Wells	Total No. of Prod. Wells	Oil Prod. (cubic metres)	Water Prod. (cubic metres)	Value of Oil Prod. (million dollars)	Ave. Price of Oil ($ per cubic metre)	Crown Royalty & Freehold Prod. Tax (million dollars)	Ave. Royalty & Tax Rate (percent)	Royalty & Tax $ per Barrel
Senlac 411	79	737	413	977,742	14,921,382	172.0	175.92	15.7	9.1	2.55
Cut Knife 439	4	22	5	1,975	477	0.3	162.88	0.01	3.1	0.80
Hillsdale 440	158	618	434	674,815	2,726,672	114.0	168.94	6.5	5.7	1.53
Manitou Lake 442	22	499	264	322,914	2,858,588	58.6	181.39	7.6	13.0	3.74
Turtle River 469	87	693	354	454,671	1,499,178	71.9	158.15	8.5	11.8	2.97
Paynton 470	12	168	132	242,706	321,527	39.9	162.10	4.7	11.9	3.08
Eldon 471	159	1,926	1,068	1,893,879	3,401,323	306.0	161.57	37.1	12.1	3.11
Wilton 472	221	1,626	748	766,981	1,687,911	127.0	165.58	11.1	8.7	2.30
Mervin 499	79	195	122	206,500	147,751	33.0	159.71	1.8	5.5	1.39
Frenchman Butte 501	79	1,041	483	1,319,506	3,150,493	212.0	160.67	16.5	7.8	1.99
Britannia 502	167	1,194	638	1,002,908	1,383,866	156.0	155.55	16.4	10.5	2.60
Totals	1,068	8,769	4,661	7,864,597	32,099,164	1,290.7		125.91		

8.0 A Financial Examination of Heavy Oil Municipalities

Summary Report of Financial Profiles for Heavy Oil RMs

It is often assumed that the presence of oil industry activity results in increased wealth for the RM. Indeed, the revenues generated through licensing and increased assessment do provide for increased revenues for the RM. However, the RMs hosting the oil industry also have greater costs associated with their road infrastructure, especially in the heavy oil regions.

As previously indicated, there are 27 RMs that have heavy oil activity. This analysis only examines the 11 RMs found within the Lloydminster region. These RMs are referred to as the NW RMs and include Senlac, Cut Knife, Hillsdale, Manitou Lake, Turtle River, Paynton, Eldon, Wilton, Mervin, Frenchman Butte and Britannia.

The following sections provide an overview of the financial profiles of the NW RMs based on selected Expenditure, Revenue and Municipal Tax base indicators. In each table, the average for the NW RMs[9] is provided along with the average for the province as a whole and an average for the RMs without any oil and gas activity. This distinction was made to provide a clear comparison between those RMs whose finances are influenced by the presence of oil and gas and those that are not.

8.1 Revenues and Expenditures for NW RMs

NW RM Revenues (Table 8.1.1)

- The NW RMs receive significantly less revenue from Grants in Lieu and Sales of Service then either the provincial average or the non-oil RMs. The RMs with oil outside of the NW group are not shown separately in the table but are counted in the provincial average and that makes the provincial average higher than that of the NW RM and Non-oil RM averages.
- If we look at revenues generated through licenses (7.2X) and permits (3.2X) (revenues identified as primarily generated by the oil industry), we see that they are significantly greater than the provincial average, although a relatively minor part of total revenues. However, these areas of revenue generation are significantly higher compared to those RMs with no oil and gas assessment.
- In other revenue sources, the NW RMs consistently receive considerably more revenue than the provincial average and in particular, more than the RMs with no oil and gas assessment.
- The total revenues for these RMs is 1.8X greater than the provincial average for all RMs ($1,219,685 versus $695,821). Property taxes for these RMs are 1.7X the provincial average, reflecting the presence of resource industry assessment or mill rate factor.
- In terms of total revenues, only the RMs of Senlac, Cut Knife and Paynton have total revenues lower than either the provincial average or the average for non-oil RMs. All three of these RMs could be considered to be on the fringe of heavy oil development at this time.

[9] The NW RM average includes only the 11 RMs included in this study.
The Non-oil RMs average includes the 157 RMs with no oil and gas assessment.
The Provincial average is derived from all 297 RMs.

Table 8.1.1: NW RM Revenues (Year Ending 2000) [10] (Dollars)

RM	Total Taxes	Grants in Lieu	Sales of Service	Own Source Revenue	Licenses	Permits	Maint & Rest Agree	Total Grants	Total Revenue
411 Senlac	438,320	29	4,235	83,191	36,400	3,303	3,353	35,382	561,337
439 Cut Knife	438,372	5,511	13,764	50,707	3,150	-	7,966	59,786	568,140
440 Hillsdale	600,985	3,024	8,018	162,812	87,300	21,650	14,956	359,317	1,134,156
442 Manitou Lake	607,003	114	24,807	24,807	10,800	170	3,000	317,239	951,442
469 Turtle River	608,712	3,752	1,007	103,351	44,100	500	0	43,055	759,827
470 Paynton	301,750	13,877	33,967	28,163	-	5,850	0	31,542	409,299
471 Eldon	1,034,031	-	50,734	341,476	89,780	2,400	6,827	129,540	1,555,781
472 Wilton	1,387,524	2,493	3,167	889,006	109,800	250	25,036	85,074	2,386,688
499 Mervin	794,106	10,752	11,679	210,320	-	34,680	0	226,618	1,253,475
501 Frenchman Butte	1,163,779	4,154	10,192	129,506	41,855	315	12,802	145,535	1,453,166
502 Britannia	1,762,761	3,248	10,945	394,128	88,885	10,604	13,960	212,146	2,383,228
NW RM Average	830,668	4,269	13,635	219,770	46,552	7,247	7,991	149,562	1,219,685
Provincial Average	485,183	11,262	15,689	66,660	6,506	2,295	7,783	115,113	695,821
Amount Greater (Less) than Provincial Average	1.7X	(2.6X)	(1.2X)	3.3X	7.2X	3.2X	1X	1.3X	1.8X
Non-Oil Provincial Average	399,610	9,085	15,322	45,139	380	989	5,572	116,167	587,344
Amount Greater (Less) than Non-Oil Provincial Average	2.1X	(2.1X)	(1.1X)	4.9X	122.5X	7.3X	1.4X	1.3X	2.1X

[10] The categories found under Revenues are made up of the following:

- Total Taxes are the amounts the RM receives from the Municipal and Special tax levies, potash and other fees.
- Grants in Lieu are the payments the RM receives from government agencies located within their boundaries.
- Total Sales of Service includes the revenue the RM receives from various fees ranging from policing services and recreation programs to utilities and general office fees.
- Own Source Revenues include moneys gained through such sources as licensing and permitting fees, interest, sales of supplies and gravel and maintenance and restoration agreements. Because licences, permits and road maintenance and restoration agreements are major sources of revenue and largely paid by the Oil Industry, they have also been considered separately.
- Total Grants include both unconditional and conditional grants from both the Federal and Provincial Governments. It includes such programs as the Road Preservation and Restoration Grants and the Heavy Haul-High Volume Road Program included in Revenue Sharing.

NW RM Expenditures (Table 8.1.2)

- The overall trend for the NW RMs is higher expenditures then the provincial average. This is especially evident in the capital expenditures and transportation categories.
- The total capital expenditures are 3.3X greater, while the transportation services costs are 2X greater than the provincial average.
- However, there is very little difference (i.e. increase in the amount between the averages) when the NW RMs average is compared against the overall provincial average and the average for the non-oil RMs.
- The increase becomes more apparent when comparing the capital expenditures, as the NW RMs have five times the cost of non-oil RMs.
- When examining the revenues against the expenditures for the NW RMs, it is evident that the ability to generate revenue is considerably higher in terms of property taxes, licenses, permits and maintenance and restoration agreements.
- Despite this ability, the NW RMs have average expenditures versus revenues that result in a net average shortfall of $27,474 or approximately 2% of their revenue.
- In contrast, the provincial average revenue versus expenditure results in a surplus of $13,644 or 2% of their revenues and the non-oil RMs have a surplus of $10,094 or 2% of their revenue.
- The oil industry makes contributions (either financial or in kind) to road infrastructure that do not flow through municipal financial statements. However, they do appear in industry financial statements because they are spent directly by industry on road infrastructure.
- These contributions do not occur uniformly throughout the regions in which the industry operates and it is not possible to provide accurate dollar amounts on these contributions.

Table 8.1.2: NW RM Expenditures (Year Ending 2000)[11] (Dollars)

RM	Total Govn't Services	Protective Services*	Total Trsp Services	Total Env't Health Services	Total Capital Expenditures	Total Expenditures before Interfund Transactions
411 Senlac	105,759	7,102	255,475	272	74,925	600,854
439 Cut Knife	108,165	14,953	326,883	9,907	40,541	579,370
440 Hillsdale	116,616	23,885	992,763	644	15,136	1,236,166
442 Manitou Lake	105,168	4,703	880,953	-	1,682	1,125,670
469 Turtle River	133,532	9,837	424,928	2,544	-	748,134
470 Paynton	74,343	5,856	224,165	1,646	18,437	378,658
471 Eldon	210,881	18,415	1,444,994	11,636	432,965	2,248,514
472 Wilton	219,299	67,920	1,347,759	43,905	209,137	2,044 ,812
499 Mervin	206,928	37,652	700 209	6,376	141,949	1,220,197
501 Frenchman Butte	162,015	16,698	1,185,848	1,940	376,612	1,830,460
502 Britannia	259,863	37,799	1,622,451	19,878	298,979	2,497,911
NW RM Average	154,779	22,256	855,130	8,977	146,397	1,319,159
Provincial Average	110,427	15,814	419,543	6,501	44,392	682,177
Amount Greater (Less) than Provincial Average	1.4X	1.4X	2X	1.4X	3.3X	1.9X
Non-Oil Provincial Average	101,193	14,145	346,464	7,194	29,503	577,250
Amount Greater (Less) than Non-Oil Provincial Average	1.5X	1.6X	2.5X	1.2X	5.0X	2.3X

*Includes only Fire Protection, Ambulance and Animal & Pest Control as identified by the RMs as increased expenditures due to presence of the Oil Industry.

[11] The categories under Expenditures are made up of the following types of costs:

- Total Government Services includes all the expenses associated with operating the RM Office, such as staff salary and benefits, building utilities and rent, insurance and other fees.
- Transportation Services includes staffing costs, machinery insurance, repairs and tools, gravel, culverts/drainage and surfacing materials. It also includes the costs associated with snow removal and street lighting and signage.
- Total Environmental Health Services includes public wells, waste collection and disposal.
- Total Capital Expenditures include the portions required by the RM for replacing equipment .
- Interfund Transactions mean the transfer of moneys from reserves, general surplus or the capital fund into the operating fund.

8.2 Selected Financial Condition and Bench Mark Indicators (Table 8.2)

- Only in 1 of 8 selected financial indicators does the NW RMs have a negative indicator of financial health. This indicator is the net equity as a percentage of net municipal tax levy. This ratio, by provincial recommendation, should be at or above 1 (representing one year of municipal levy in reserve). Collectively, these RMs are worse than the provincial average and in fact 6 of 11 are way below the guidelines of 1. Only 2 exceed the provincial average.
- In the remaining indicators, the NW RMs have positive indicators. Significantly, the amount of tax arrears as a percent of net municipal tax levy and the expenditures on government services are lower than both the provincial average and that of the non-oil RMs.
- When the RM of Wilton is removed from the accumulated surplus average, the average for the NW RMs becomes $437,833. This is only 1X the provincial average and 1.2X the non-oil average.
- The large amount of accumulated surplus for the RM of Wilton is anomalous because the RM had set aside extra funding. A portion of this money was spent in the following year and the other portion was a targeted savings for an unresolved issue between the city of Lloydminster and the RM on tax sharing for the upgrader located within the RM.
- The assertion that NW RMs are wealthier than other RMs because of the presence of oil does not hold based on a review of these financial indicators. Their revenues are higher, but so are their expenditures, and at least in terms of financial assets, many of the NW RMs are worse off than the provincial and non-oil and gas RM averages.

Table 8.2: Selected Financial Condition and Bench Mark Indicators (Year Ending 2000) [12]

RM	Gen Govn't as % of Total Exp. $	Mun. Tax Arrears As % Of Net Mun. Tax Levy $	Net Mun. Tax $ per capita	External Debt per capita $	Net Equity as % of Net Mun. Tax Levy $	Accum Surplus $
411 Senlac	17.60	2.53	1,481	-	1.91	355,697
439 Cut Knife	18.67	7.47	902	315	0.67	215,146
440 Hillsdale	9.43	11.14	977	-	0.57	342,299
442 Manitou Lake	9.34	6.03	982	-	0.30	68,993
469 Turtle River	17.85	3.22	1,628	-	0.73	442,313
470 Paynton	19.63	13.91	1,002	-	1.25	300,826
471 Eldon	9.38	2.82	1,234	-	0.70	722,579
472 Wilton	10.80	9.89	884	-	2.77	2,777,789
499 Mervin	16.96	16.95	679	-	1.24	445,136
501 Frenchman Butte	8.85	2.78	873	-	1.33	963,513
502 Britannia	10.42	4.43	1,298	323	0.31	521,824
NW RM Average	13.54	7.38	1,086	46	1.07	650,556
Provincial Average	18.22	16.78	853	23	1.62	426,612
Amount Greater (Less) than Provincial Average	(1.3X)	(2.3x)	1.3X	2X	(1.5X)	1.5X
Non-Oil Provincial Average	19.12	22.829	638	30	1.65	359,609
Amount Greater (Less) than Non-Oil Provincial Average	(1.4X)	(3.1x)	1.7X	1.5X	0.6X	1.8X

[12] The following provides a description of each of the categories:

- General Government As % Of Total Expenditures takes the total general government services and divides by the total expenditures before inter-fund transaction. The average in 2000 was 18.22%.
- Municipal Tax Arrears As % Of Net Municipal Tax Levy is the tax arrears as per tax roll. The average in 2000 was 16.78%.
- Municipal Tax Dollars Per Capita takes the net municipal tax levy divided by the population. The average in 2000 was $853.
- External Debt Per Capita takes the net long-term debt divided by the population. The average in 2000 was $23.
- Net Equity As % Of Net Municipal Tax Levy is the total equity less internal indebtedness divided by the net municipal tax levy. This ratio should be at least 1, as municipalities should have the equivalent of one years tax levy in equity.
- Accumulated Surplus/(Deficit): the municipality's accumulated surplus/(deficit). This should be a positive number.

8.3 NW Municipal Assessment and Levy (Tables 8.3.1 to 8.3.6)

- As expected, the overall assessment for the heavy oil RMs is higher (1.7X) than both the provincial average and that of the non-oil RMs.
- In particular, the commercial sector assessment is significantly larger for the NW RMs, versus either the provincial average or that of the non-oil RMs.
- The agricultural and residential assessments are more comparable.
- The average municipal property tax levy for the NW RMs indicates that in total this area has almost twice the levy that either the provincial average or non-oil RMs have.
- Although in all cases the levy is higher, commercial property classes pay significantly higher property tax. This is clearly reflected in the average mill rates, where all property classes are lower than either the averages for the province or the non-oil RMs, excluding commercial.
- 6 of 11 RMs have municipal mill rates higher than the provincial average.
- 7 of 11 RMs have set commercial mill rate factors above the provincial average, and in two cases, Paynton and Brittania, substantially above. The difference for these two RMs between commercial and agricultural MRFs is also quite dramatic.
- Because mill rates are applied to the school portion of the property tax, this pattern is repeated for the school portion. Average mill rates and levies are lower for the agricultural and residential property classes, while they are higher for commercial.
- The highest to lowest mill rate factor ratio for each municipality must be viewed to put mill rate factor policies in perspective. For example, a commercial mill rate factor of 1.25 may seem reasonable, but compared to the lowest mill rate factor of 0.25 on agricultural property the relative difference is significant. It is important also to realize that the commercial property tax rate is not simply a multiple of one and one quarter times the uniform mill rate – it is actually 5 times higher than the tax rate of the agricultural class.
- Within the province, Mill Rate Factors (MRF) vary quite dramatically. The lowest to highest MRF ranges, for the agriculture and commercial/industrial property classes are as follows:
    - Agriculture 0.25 to 1.28
    - Commercial/Industrial 0.645 to 5.00
- Table 8.3.1 provides a comparison of the agriculture to commercial/industrial MRFs. The average MRF comparison for the NW RMs demonstrates that the commercial/industrial property classes pay 1.7 times more than the agricultural class. Although commercial/industrial pays a higher portion in both the provincial and non-oil averages, it is a smaller difference at 1.4 times and 1.3 times respectively. Several RMs (notably Wilton and Frenchman Butte) have lower differences than the average, while a few have significantly higher (Paynton and Britannia). The data for 2001 and 2002 indicates a growing spread between agricultural and commercial mill rate factors in a number of northwestern RMs, notability Britannia #502, Heart's Hill #352, Eldon #471 and Turtle River #469.

For the property tax tables, the following information applies:

- Those RMs with an * mean that they include a Regional Park assessment
- mt = Minimum Tax
- Agricultural assessments were subject to 0.83 factor on school taxes, province wide in 2000 and this is included in the calculations.

Table 8.3.1: Rural Municipality Mill Rate Factors (MRF)(Year Ending 2000)

Rural municipality	Municipal Mill Rate	Agric. MRF	Res. MRF	Seasonal Residential MRF	Commercial /Industrial MRF	MRF Applied to School Portion?	Comparison of Agric to Commercial/ Industrial MRF	Other Tax Tools?
411 Senlac *	6.5	0.785	1.13	1	1.14	Y	1.5 X	N
439 Cut Knife *	12.0	N/A	N/A	N/A	N/A	NA	N/A	N
440 Hillsdale	10.5	0.8695	1.0845	N/A	1.2636	Y	1.5 X	N
442 Manitou Lake *	10.0	0.844	0.8433	N/A	1.3334	Y	1.6 X	N
469 Turtle River	11.8	0.8103	1.0069	N/A	1.25	Y	1.5 X	Y (mt)
470 Paynton	10.5	0.6389	1.3903	N/A	2.0432	Y	3.2 X	
471 Eldon *	6.5	0.8055	1	N/A	1.25	Y	1.6 X	Y (mt)
472 Wilton	8.0	0.901	0.9664	N/A	1.0666	Y	1.2 X	
499 Mervin *	10.8	1	1	1	1.4	Y	1.4 X	Y (mt)
501 Frenchman Butte	9.6	0.89	1.111	1.048	1.0947	Y	1.2 X	Y (mt)
502 Britannia *	13.4	0.6904	0.7364	0.7364	1.9501	Y	2.8 X	
NW RMs Average	10.0	0.804	1.034	0.928	1.379		1.7 X	
Provincial Average	10.644	0.906	1.260	1.206	1.237		1.4 X	
Non-oil RM Average	11.54	0.9794	1.1169	1.45	1.2835		1.3 X	

Table 8.3.2: Taxable Assessment (Year Ending 2000)

	Taxable Assessment ($)					
Rural Municipality	**Agricultural**	**Residential**	**Seasonal Residential**	**Commercial /Industrial**	**Business***	**Total**
411 Senlac *	23,258,210	305,350	57,830	41,058,100	152,000	64,831,490
439 Cut Knife *	33,570,710	637,500	0	2,379,485	97,400	36,685,095
440 Hillsdale	34,820,470	568,100	0	20,933,500	0	56,322,070
442 Manitou Lake *	33,809,540	1,169,690	0	23,373,585	12,600	58,365,415
469 Turtle River	18,502,080	409,515	0	23,681,300	0	42,592,895
470 Paynton	18,143,320	765,590	0	7,769,300	182,500	26,860,710
471 Eldon *	49,293,320	2,740,950	0	80,459,200	13,300	132,506,770
472 Wilton	62,265,510	10,611,060	0	99,170,535	496,400	172,543,505
499 Mervin *	33,792,530	6,812,290	17,680,570	7,866,700	0	66,152,090
501 Frenchman Butte	45,392,240	4,007,195	976,380	66,552,550	251,600	117,179,965
502 Britannia *	39,794,810	10,653,067	0	49,683,800	300,675	100,432,352
NW RMs Average	35,694,795	3,516,392	1,701,344	38,448,005	136,952	79,497,487
Provincial Average	29,532,254	2,671,159	606,802	13,388,227	497,278	46,695,719
Non-Oil Provincial Average	28,103,476	2,294,606	817,502	2,839,263	247,423	34,302,266

* The Year 2000 was the last year for business assessment in Saskatchewan.

Table 8.3.3: Municipal Property Taxes (Year Ending 2000)

Rural Municipality	**Agricultural**	**Residential**	**Seasonal Residential**	**Commercial /Industrial**	**Business**	**Total**
411 Senlac *	118,858	2,246	676	304,708	990	427,478
439 Cut Knife *	402,849	7,650	0	28,554	1,169	440,221
440 Hillsdale	319,264	6,497	0	278,931	0	604,692
442 Manitou Lake *	293,337	10,177	9	317,701	130	621,354
469 Turtle River	176,292	4,849	0	428,330	0	609,470
470 Paynton	121,718	11,177	0	166,686	1,916	301,497
471 Eldon *	258,089	17,816	0	758,039	86	1,034,031
472 Wilton	449,539	82,169	0	847,577	3,978	1,383,264
499 Mervin *	408,484	67,990	197,441	130,068	0	803,984
501 Frenchman Butte	387,831	42,739	9,823	727,690	2,415	1,170,499
502 Britannia *	368,230	105,143	0	1,298,566	4,030	1,775,970
NW RMs Average	300,408	32,587	18,905	480,623	1,338	833,860
Provincial Average	296,722	27,133	7,081	134,615	4,252	469,804
Non-Oil Provincial Average	318,537	26,138	9,898	33,159	2,756	390,488

Table 8.3.4: Average Municipal Mill Rate by Property Class (Year Ending 2000)*

Rural Municipality	Agricultural	Residential	Seasonal Residential	Commercial /Industrial	Business	Total
411 Senlac *	5.110	7.355	11.689	7.421	6.513	6.594
439 Cut Knife *	12.000	12.000		12.000	12.000	12.000
440 Hillsdale	9.169	11.436		13.325		10.736
442 Manitou Lake *	8.676	8.700		13.592	10.354	10.646
469 Turtle River	9.528	11.840		18.087		14.309
470 Paynton	6.709	14.599		21.454	10.500	11.224
471 Eldon *	5.236	6.500		9.421	6.500	7.804
472 Wilton	7.220	7.744		8.547	8.013	8.017
499 Mervin *	12.088	9.980	11.167	16.534		12.154
501 Frenchman Butte	8.544	10.666	10.061	10.934	9.600	9.989
502 Britannia *	9.253	9.870		26.137	13.403	17.683
NW RMs Average	8.503	10.063	10.972	14.314	9.610	11.014
Provincial Average	10.047	10.158	11.670	10.055	8.551	10.061
Non-Oil Provincial Average	11.334	11.391	12.107	11.679	11.140	11.384

* Calculated from municipal mill rate, mill rate factors and the use of all tax tools.

Table 8.3.5: School Property Taxes (Year Ending 2000)

Rural Municipality	Agricultural	Residential	Seasonal Residential	Commercial/ Industrial	Business	Total
411 Senlac *	280,453	6,386	10,870	866,243	2,813	1,166,765
439 Cut Knife *	529,411	19,042	56,203	45,210	1,851	651,716
440 Hillsdale	422,809	9,865	0	427,967	0	860,640
442 Manitou Lake *	368,200	15,335	908	484,519	196	869,157
469 Turtle River	200,342	6,639	0	497,931	0	704,911
470 Paynton	193,499	17,212	0	213,577	4,588	428,875
471 Eldon *	495,194	41,681	38	1,514,119	200	2,051,231
472 Wilton	781,193	172,228	0	1,582,863	6,548	2,542,833
499 Mervin *	475,167	116,765	311,448	186,581	0	1,089,961
501 Frenchman Butte	569,655	75,634	17,384	1,237,719	4,274	1,904,667
502 Britannia *	277,819	98,314	12,528	1,173,792	3,467	1,565,921
NW RMs Average	417,613	52,645	37,216	748,229	2,176	1,257,880
Provincial Average	467,111	51,638	13,154	263,082	9,509	850,273
Non-Oil Provincial Average	464,414	45,366	18,005	56,984	4,839	638,192

Table 8.3.6: Average School Mill Rate by Property Class (Year Ending 2000)

Rural Municipality	Agricultural	Residential	Seasonal Residential	Commercial / Industrial	Business	Total
411 Senlac *	12.058	20.914	18.506	21.098	18.507	17.997
439 Cut Knife *	15.770	19.000	19.000	19.000	19.000	17.765
440 Hillsdale	12.143	17.365		20.444		15.281
442 Manitou Lake *	10.890	13.110	15.546	20.729	15.543	14.892
469 Turtle River	10.828	16.211		21.026		16.550
470 Paynton	10.665	22.481		27.490	25.142	15.967
471 Eldon *	10.046	15.026	15.028	18.783	15.026	15.480
472 Wilton	12.546	16.231		15.961	13.192	14.737
499 Mervin *	14.061	16.941	16.941	23.718		16.477
501 Frenchman Butte	12.550	18.875	17.804	18.598	16.989	16.254
502 Britannia *	6.981	8.934	9.006	23.625	11.532	15.592
NW RMs Average	11.685	16.826	15.976	20.952	16.866	16.090
Provincial Average	15.817	19.239	19.264	19.645	19.123	17.316
Non-Oil Provincial Average	16.526	19.649	20.091	20.035	19.557	18.553

8.4 Revenue Comparison (Table 8.4)

- As this table demonstrates, there is an incremental difference in the amount of revenue and expenditures in the NW RMs of approximately $1,094,207.
- By comparison, the province received approximately $125.91 million in royalties from the oil industry, or 9.7% of the total value of heavy oil production in the province from within the NW RMs (Table 7.2).
- The province also received a total of $20.7 million in revenue from Bonus Bid sales or leases of Crown Oil and Gas Mineral rights in the Lloydminster area in 2000. This is not available by RM so is not included in this table.
- The transfers columns indicate that the RMs have transferred money from other reserve funds to account for total expenditures. It is not uncommon for RMs to pay for capital expenditures (such as graders or even road repairs/construction) in this way. Similarly, several RMs have transferred money into reserve funds (a total of $388,104) for future expenditures.
- When the total revenue and total transfers in from reserve funds are added together, the NW RMs have total revenues for 2000 of $15,063,248, compared to total expenditures (total expenditures plus total transfers into reserve funds) of $14,898,850.

Table 8.4: Revenue Comparison: NW RM Revenue and Expenditures (2000)

RM	NW RM Total Revenue ($)	Total Transfers in from Reserve Funds	NW RM Total Expenditures before Interfund Transactions ($)	Total Transfers into Reserve Funds	Surplus (Deficit*) for the Current Year
411 Senlac	561,337	112,547	600,854	70,586	2,444
439 Cut Knife	568,140	50,000	579,370	0	38,770
440 Hillsdale	1,134,156	81,000	1,236,166	0	(21,010)
442 Manitou Lake	951,442	2,568	1,125,670	0	(171,660)
469 Turtle River	759,827	27,153	748,134	0	38,846
470 Paynton	409,299	0	378,658	30,000	641
471 Eldon	1,555,781	692,834	2,248,514	0	101
472 Wilton	2,386,688	25,273	2,044,812	201,133	166,016
499 Mervin	1,253,475	818	1,220,197	10,098	23,998
501 Frenchman Butte	1,453,166	388,397	1,830,460	8,457	2,646
502 Britannia	2,383,228	226,119	2,497,911	17,830	93,606
Total	**$13,416,539**	**$1,646,709**	**$14,510,746**	**$338,104**	**N/A**

* Under the RMA, deficits are to be accounted for in the following year's budget.

High Producing RMs of the NW Heavy Oil Region

Because some of the RMs in the NW region are relatively new to the heavy oil industry, the high producing RMs were selected for a more detailed examination. These RMs were designated as high producing because their total number of wells exceeded 1,000 and oil production was over 1 million cubic metres. The RMs of Eldon 471, Wilton 472, Frenchman Butte 501 & Britannia 502 fit into this category. Tables 7.5 through 7.8 provide an indication of the impact of the heavy oil industry on these RMs.

8.5 High Producing NW RM Expenditures (Table 8.5)

- The overall average expenditures for the high producing NW RMs are 3.2X greater than the provincial average, and exceed the NW RMs average expenditures by $ 836,265.
- Transportation services (3.3X) and capital expenditures (7.4X) have the greatest cost differential from the provincial averages.
- Significantly, the capital expenditures for the HP NW RMs are 11X greater than non-oil RMs.

Table 8.5: High Producing (HP) NW RM Expenditures (Year Ending 2000)

RM	Total Govn't Services	Protective Services*	Total Trsp Services	Total Env't Health Services	Total Capital Expend	Total Expend before Interfund Transactions
471 Eldon	210 881	18 415	1 444 994	11 636	432 965	2 248 514
472 Wilton	219 299	67 920	1 347 759	43 905	209 137	2 044 812
501 Frenchman Butte	162 015	16 698	1 185 848	1 940	376 612	1 830 460
502 Britannia	259 863	37 799	1 622 451	19 878	298 979	2 497 911
HP NW RM Average	213 015	35 208	1 400 263	19 340	329 423	2 155 424
NW RM Average	154 779	22 256	855 130	8 977	146 397	1 319 159
Provincial Average	110 427	15 814	419 543	6 501	44 392	682 177
Non-Oil Provincial Average	101,193	14,145	346,464	7,194	29,503	577,250
HP Amount Greater (Less) than Provincial Average	1.9X	2.2X	3.3X	2.9X	7.4X	3.2X
NW RM Amount Greater (less) than Provincial Average	1.4X	1.4X	2X	1.4X	3.3X	1.9X
HP Amount Greater (Less) than Non-Oil Provincial Average	2.1X	2.5X	4X	2.7X	11X	3.7X

*Includes only Fire Protection, Ambulance and Animal & Pest Control

8.6 High Producing NW RM Revenue (Table 8.6)

- The 4 RMs receive 2.8X the provincial average in total revenues.
- Licenses generate a larger source of revenue but this does not account for a significant percentage of the total revenue (4.2%) generated for the RM. In comparison, only 3.8% of the total provincial average revenues is generated from licenses, and only 0.06% for non-oil RMs.
- There is a significantly larger revenue shortfall for the HP RMs ($210,708 or 10% of revenue) versus that of the NW RMs ($27,474 or 2% of revenue). However, as demonstrated in Table 8.4, these 4 RMs have transferred in from reserve funds a total of $1,332,623 dollars and have contributed $227,420 to their reserve funds.
- Each of these RMs had a surplus budget for 2000.

Table 8.6: High Producing (HP) NW RM Revenues (Year Ending 2000) ($)

RM	Total Taxes	Grants in Lieu	Sales of Service	Own Source Revenue	Licenses	Permits	Maint & Rest Agree	Total Grants	Total Revenue
471 Eldon	1,034,031	-	50,734	341,476	89,780	2,400	6,827	129,540	1,555,781
472 Wilton	1,387,524	2,493	3,167	889,006	109,800	250	25,036	85,074	2 386,688
501 Frenchman Butte	1,163,779	4,154	10,192	129,506	41,855	315	12,802	145,535	1,453,166
502 Britannia	1,762,761	3,248	10,945	394,128	88,885	10,604	13,960	212,146	2,383,228
HP NW RM Average	1,337,024	3,298	18,760	438,529	82,580	3,392	14,656	143,074	1,944,716
NW RM Average	830,668	4,269	13,635	219,770	46,552	7,247	7,991	149,562	1,219,685
Provincial Average	485,183	11,262	15,689	66,660	6,506	2,295	7,783	115,113	695,821
Non-Oil Provincial Average	399,610	9,085	15,322	45,139	380	989	5,572	116,167	587,344
HP Amount Greater (Less) than Provincial Average	2.8X	(3.4X)	1.2X	6.6X	12.7X	1.5X	1.9X	1.2X	2.8X
NW RM Amount Greater (less) than Provincial Average	1.7X		1.2X	3.3X	7.2X	3.2X	1X	1.3X	1.8X
Amount Greater (Less) than Non-Oil Provincial Average	3.3X	28X	1.2X	9.7X	217X	3.4X	2.6X	1.2X	3.3X

8.7 High Producing NW RM Financial Conditions (Table 8.7)

- As in the case of the NW RMs, the high producing NW RMs have a positive financial outlook, except for the one year municipal levy in reserve.
- In this case, both the RMs of Wilton and Frenchman Butte have in excess of the 1 year recommended, while both Eldon and Britannia are below.

Table 8.7: High Producing (HP) NW RM - Selected Financial Condition and Bench Mark Indicators (Year Ending 2000)

RM	Gen Govn't as % of Total Exp.	Mun. Tax Arrears as % of Net Mun. Tax Levy	Net Mun. Tax $ per capita $	External Debt per capita $	Expen per capita $	Rev per capita$	Net Equity as % of Net Mun. Tax Levy	Accum. Surplus $
471 Eldon	9.38	2.82	1 234	-	2 683	1 857	0.70	722,579
472 Wilton	10.80	9.89	884	-	1 307	1 526	2.77	2,777,789
501 Frenchman Butte	8.85	2.78	873	-	1 375	1 092	1.33	963,513
502 Britannia	10.42	4.43	1 298	323	1 839	1 755	0.31	521,824
HP NW RM Average	9.86	4.98	1 072		1 801	1 558	1.23	1 246 426
NW RM Average	13.54	7.38	1 086		1 687	1 558	1.07	650,556
Provincial Average	18.22	16.78	853		1 231	1 266	1.62	426,612
Non-Oil Provincial Average	19.12	22,829	638	30	997	1,014	1.65	359,609
HP Amount Greater (Less) than Provincial Average	(1.8X)	(2.3X)	1.3X		1.3X	1.2X	1.3X	2.9X
NW Amount Greater (less) than Provincial Average	(1.3X)	(2.3X)	1.3X		1.4X	1.2X	(1.3X)	1.5X
Amount Greater (Less) than Non-Oil Provincial Average	(1.9X)	(4.6X)	1.7X		1.8X	1.5X	(1.3X)	3.5X

8.8 High Producing NW Municipal Commercial Assessment and Levy (Table 8.8)

- The high producing RMs have a commercial assessment that is 5.5X greater than the provincial average, and apply a mill rate that is higher than the provincial average (13.750 versus 10.032), resulting in an overall commercial tax levy that is 6.7X greater than the provincial average.
- The overall municipal tax levy is only 2.9X greater than the provincial average.
- The mill rates applied to agriculture and residential properties in these RMs are all lower than the provincial average.
- In 2000, the RMs of Eldon, Wilton and Frenchman Butte all have commercial mill rate averages that are lower or comparable to the provincial average. Britannia is significantly higher than the provincial average (26.137 versus 10.055). These averages take into account the use of all tax tools. In 2002, Eldon increased its factored commercial mill rate to 23.8.

Table 8.8: High Producing NW Municipal Commercial Assessment and Levy (Year Ending 2000)

RM	Commercial & Industrial Assessment	Total Assessment	Average Commercial Mill Rate	Commercial & Industrial Levy	Total Municipal Tax Levy	Mill Rate Factor Applied to School Taxes
471 Eldon	80,459,200	132,506,770	9.421	758,040	1,034,031	Y
472 Wilton	99,170,535	172,543,505	8.547	847,577	1,383,264	Y
501 Frenchman Butte	66,552,550	117,179,965	10.934	727,690	1,170,499	Y
502 Britannia	49,683,800	100,432,352	26.137	1,286,020	1,775,970	Y
HP NW RM Average	73,966,521	130,665,648	13.760	904,832	1,340,941	
NW RM Average	38,448,005	79,497,487	14.950	480,623	833,860	
Provincial Average	13,388,227	46,695,719	10.055	134,615	469,804	
Non-Oil Average	2,839,263	34,302,266	11.679	33,159	390,488	
HP Amount Greater (Less) than Provincial Average	5.5X	2.8X	1.4X	6.7X	2.9X	
NW RM Amount Greater (less) than Provincial Average	2.9X	1.7X	1.5X	3.6X	1.8X	
HP NW RM Average Greater (less) than the Non-oil Amount	26.1X	3.8X	1X	27.3X	3.4X	

9.0 Road Maintenance Assistance Programs Across Canada

9.1 Introduction

A survey of other jurisdictions across Canada determined that only the province of Alberta has road maintenance agreements that apply to municipalities. Other jurisdictions have various federal-provincial or local government - industry agreements. The following sections provide an overview of the various agreements in place across Canada, beginning with Alberta's programs.

9.2 Alberta

In Alberta, there are several different programs that offer some funding for road systems.

- The Rural Transportation Grants Program for Counties, Municipal Districts, Métis Settlements and Special Areas is an annual grant that includes both maintenance and improvements to local roads. The grant is allocated based on a formula taking into account population, equalized assessment, kilometres of open road and terrain.
- Under the Municipal Government Act in Alberta, a municipality may enter into an agreement with a person with respect to a former forestry road to determine use, charge others a fee for such use and to determine the obligations related to the maintenance of the road.
- Of greater significance to this study are two programs aimed specifically at resource based roads: the Trial Road Notification and Repair Agreement and the Alberta Resource Roads/ New Industry Program.

9.2.1 Trial Road Notification and Repair Agreement

The Trial Road Notification and Repair Agreement has been developed over the past several years by the Alberta Association of Municipal Districts and Counties (AAMD&C), the Canadian Association of Geophysical Contractors (CAGC), the Canadian Association of Oil Well Drilling Contractors (CAODC), the Petroleum Services Association of Canada (PSAC), the Canadian Energy Pipeline Association (CEPA), the Small Explorers and Producers Association of Canada (SEPAC) and the Canadian Association of Petroleum Producers (CAPP) The agreement is still in a trial stage and has not yet been implemented. The rationale behind the agreement is to protect municipal roads damaged by resource sector use and to have one set of rules and one agreement for the oil industry to deal with.

The agreement sets the parametres under which a resource industry may utilize roads within a municipality, provides a mechanism for determining any damages caused by the industry and for claiming compensation for those damages.

Under the terms of the agreement, both the municipality and the company are required to provide notification to each other regarding the use of roads and appurtenances within the municipality, monitor their use, have an inspection process and in the event of damage, those causing the damages are held responsible. The municipality can require the company to post security for use of the roads. (See Appendix 6 for the complete Draft Agreement and Table 9.2.1 for a flow chart summary of the agreement). Although the agreement can be terminated by either the oil company or the municipality, any damages caused prior to the termination are the responsibility of the oil company.

Table 9.2.1 Summary Steps for the Trial Road Notification and Repair Agreement

Notification
Company provides written notification to the Municipality of its intention to use the roads.

↓

Municipal Review
Municipality reviews the notification and advises of any restrictions or relaxation associated with road use, within two business days.

↓

Restrictions and Relaxation Notice
Municipality must provide written notice of both restrictions and relaxations, which may include a requirement to post security, within two business days. The company then provides written notice of their willingness to comply.

↓

Inspections
If the municipality and company have signed the above, inspections of the road are undertaken with representatives of both the municipality and the company. An inspection is conducted prior to initial use, during use (if requested by either party) and following completion of road use. The company must provide notice within 24 hours of the completion of its use of the roads.

Liability
Company is liable at all times for the repair of damages to the roads caused by company use.

St. Paul County, located approximately 100 kilometres north and west of Lloydminster, was asked to pilot the program but the council chose not to participate. Part of the reason for their decision is the positive working arrangement the county shares with the oil industry operating in their region. This positive working relationship has been developed over time, with give and take from both the county and the industry. For example, when the county utilized bans on the roads, the oil companies refused to contribute to road repairs, saying that the RM was restricting their production capabilities. The bans did not prevent road damages as the companies simply hauled more loads once the bans were removed. As a result, the county has chosen to remove road bans completely and the oil companies now share the costs of road repair either by providing money or oil-in-kind (i.e. to re-oil oil surface roads).

There are primarily 4 companies that operate within the county, and each time they begin operations or move a rig, they must apply to the municipality for a permit number. The county does not charge the company for the permit, but it allows them to keep track of the companies operating the wells. When damages are found on the roads, the county brings the companies together, points out the damages, and the oil companies share in the costs of repairs. Typically the county requires the companies to pay between 10 and 15 percent of the total cost.

The maintenance manager for the county *does* feel that the Trial Road Notification and Repair Agreement would be a useful tool for the oil producing municipalities to have. In the case of St. Paul County, the agreement would not be an extra burden as they employ a field worker that deals specifically with oil companies within the eastern portion of the county. He did indicate that it would be a great deal more paper work for the oil companies, but noted that the oil companies would appreciate having the same agreements throughout the province, rather than dealing with each municipality on an individual and unique basis. The manager also noted that although St. Paul's has a positive working relationship with the oil companies, there are other counties that do not and for them, such an agreement would be very useful.

Table 9.2.2 provides a comparison of the Trial Road Notification and Repair Agreement with that of *The Road Maintenance and Restoration Agreement Regulations, 1990*. As this comparison indicates, the agreements are very similar with Alberta's program providing specific inspection regulations that the Saskatchewan regulations do not. This type of arrangement would allow the municipalities to clearly determine which road users are causing the damage and seek compensation accordingly. It would also allow grain haulers the opportunity to participate.

Table 9.2.2 A Comparison of the Alberta Trial Road Notification and Repair Agreement with that of the Saskatchewan *Road Maintenance and Restoration Agreement Regulations, 1990*

Attributes	Alberta Trial Road Notification and Repair Agreement	Saskatchewan *Road Maintenance and Restoration Agreement Regulations, 1990*
Purpose	To provide notification, inspection, monitoring and compensation for the use of municipal roads by the oil and gas industry.	To provide compensation for road use that is in addition to normal road use or use that shortens the lifetime of the road.
Agreement Parties	The agreement is made between the municipality and the Oil or Gas company active in the region.	The agreement is developed between the municipality and either the hauler or receiver of bulk goods.
Fees	Municipalities can require a company to post security; there is no set maximum or minimum that can be charged. The company pays $100 for each inspection	The regulation provides the maximum and minimum rates that municipalities can charge in both the summer and winter haul periods and for use that shortens the road's lifetime.
Structure	The company provides notification to the municipality of its intended road use. The municipality reviews the proposal and sets any restrictions or relaxations on the proposed road usage and sets any security requirements at this time. Officials from both the company and the municipality conduct an initial inspection prior and after use of the roads; either party can also require an interim inspection.	If the municipality feels there is extraordinary use of the road that is causing damage to the road, the municipality may require either the hauler or the receiver of the goods to enter into an agreement. The agreement requires the payment for the incremental damages only. It is up to the municipality to enforce the agreement.

9.2.2 Alberta Resource Road/New Industry Program

The Resource Road/New Industry Program (RR/NI) was announced on August 24, 1998, as part of the Premier's Task Force on Infrastructure. The RR/NI commenced April 1, 1999 and ends in 2003. The Alberta government sees the ability to move goods and people safely and efficiently as key to rural development, or what is termed the "Alberta Advantage". In a number of rural areas in Alberta, such developments as value-added processing, resource and other industries, intensification of the livestock and crops sectors, and consolidation of grain handling facilities have resulted in significantly increased traffic volumes, particularly involving heavy trucks. The purpose of this program is to assist in the movement of goods and people associated with such developments. Projects that are considered for funding assistance include local roadways and bridges, which serve:

- value-added processing facilities,
- intensified farming operations,
- resource-based industrial developments, or
- high throughput elevators.

The program provides 75% funding of approved projects up to a maximum of $2,250,000 per project. Total funding available for the program is approximately $24 million each fiscal year from 1999/2000 to 2002/2003. The applicant municipality is required to provide at least 25% of the funding required for approved projects, and no federal or provincial programs of any kind may be used to fund the applicant's share. Municipalities are encouraged to negotiate cost-sharing agreements with the owner(s) of the development(s) being served by the project.

Each project application is reviewed by the Review Committee on the following basis:

- Applications must be for projects that will enhance the transportation of goods and people related to value-added processing facilities, intensified farming operations, resource-based industrial developments, or high throughput elevators which began operations or were expanded in 1997 or later;
- The road must be used by at least 25 trucks per day on average during any three month period of the year and at least 400 vehicles per day if paving is proposed;
- Projects may be for construction or re-construction of local roads and bridges and improvements to intersections of local roads and provincial highways may also be considered;
- Any road constructed or improved under the program must be open for use to all publicly licensed vehicles; and
- Projects must be incremental, that is, funding will not be provided for projects currently underway.

The following factors provide the basis upon which each application is rated by the committee:

- Total traffic volume (points start at 100 vehicles per day);
- Truck traffic volume (minimum 25 per day) (Existing and/or projected AADT certified by a professional engineer);
- Safety Improvements (Improvements such as sight distance at intersections, horizontal and vertical alignment, road widening to accommodate larger trucks and any other safety-related improvements.);
- Industry Value (Permanent jobs created, value of investment in facilities, number of animals handled annually for intensive livestock operation or capacity of a high throughput elevator.);
- Road Need (Existing standard of the road as an indicator of the need for construction or upgrading.); and
- Partnership (Relationship of the road to the transportation system in the area, joint application with one or more municipalities, involvement of industry in financing municipal share.)

Each application is reviewed and rated by the Review Committee, which makes a recommendation to the Minister. The Review Committee may require an applicant to make a presentation at a committee meeting to facilitate understanding of the proposed project and its potential benefits. The Minister reviews the Committee's recommendation, and decides whether the application should be approved and the amount of provincial funding to be provided. The decision of the Minister is final.

9.3 Ontario

The Ontario Ministry of Northern Development and Mines has 2 specific programs in support of local and resource access roads:

- The Local Roads Boards Program allocates the funding for the Local Roads Boards and in conjunction with the Ministry of Transportation:
  - Supports the maintenance and construction of 7,000 kilometres of local roads for over 300 Local Roads Boards, Statute Labour Boards and Special Maintenance Agreements (50/50 cost sharing) with cottagers and First Nations and supports maintenance and construction;
  - The Local Roads Boards exist only in territory without municipal organisation; and
  - Each board is required to levy annually on the whole of the assessment for taxable land in the local roads area a sum equal to the sum estimated by the board to be required for the purposes of the board during the year, including maintenance costs.

- The Resource Access Roads Program, with the Ministry of Natural Resources, allocates the funding and establishes program priorities in conjunction with the Ministry of Natural Resources for the construction and reconstruction of approximately 30,000 kilometres of forest access roads in the North. This road system provides access to Crown timber and mineral resources, provides recreational access for northern residents and tourists and facilitates the province's resource management activities.

9.4 Québec

Several years ago, the responsibility for some provincial roads was transferred to the local level. Accompanying this transfer, 2 programs were set up to assist municipalities.

- The first program's main objective is to compensate municipalities for maintenance costs for municipal roads classified level 1 or 2. This is an unconditional grant based among other things on equalized property assessment. All municipalities where costs are in excess of $0.14 per $100 of equalized property assessment values, receive compensation. The amount is established in relation to the number of kilometres and the maintenance cost. This amount is adjusted to take into consideration the state of the road when it was transferred, the traffic flow and the particular difficulties relating to winter maintenance.
- The second program is an additional grant for municipalities where the roads classified level 1 or 2 play a double role, i.e. mining or forestry access roads. In this case, the municipalities may receive $832 per kilometre of road classified level 1 or 2 and recognized as a double role or double function road. In a given year, the grant is a fixed amount, even though the road may not serve the double function all year round.
- Another program relates to road repairs and applies to these municipal roads of level 1 or 2 and playing a double role. Municipalities may benefit from provincial financial assistance for repair works to such roads that have received a grant for maintenance in the preceding year. The program outlines the specific repairs that can be financed, imposes a set of elements to submit in the request for funding and identifies specific criteria used to choose the roads to receive financing.

9.5 Newfoundland and Labrador

In 1999 a Resource Road Maintenance and Upgrade project was undertaken in the Grand Lake Resource Road system in NF/LB, by the Ministry of Forest Resources and Agrifoods, as part of the department's yearly upgrading projects on resource roads. The main objective of these road improvements is to provide continued safe and reliable access to forests for both industry and local residents. The municipalities are not responsible for resource roads.

9.6 Yukon

In 2001, the Yukon government and North American Tungsten Corp. Ltd. developed a cost sharing arrangement for road maintenance. This project includes funds to re-open and upgrade, capital costs, and also maintenance costs. The Yukon government through the Department of Community and Transportation Services and the mining company will be sharing the costs:

- The Department of Community and Transportation Services will finance the re-opening and upgrading of the road to the Yukon/NWT border located at Kilometre 188 and will maintain the road annually to Kilometre 134.
- The North American Tungsten will perform year round maintenance from Kilometre 134 to the mine site, a distance of approximately 70 kilometres.

9.7 Manitoba

In Manitoba, the only road programs are those offered through the Federal-Provincial-Municipal government Prairie Grain Roads Program (PGRP). In Manitoba, funding for the program will be split 50/50 between municipal roads and provincial highways on projects selected by a committee composed of representatives from the federal government, the province and the Association of Manitoba Municipalities. The $33.8-million federal contribution will be combined with a $16.9-million contribution each from the province and municipalities for a total program of $67.6 million.

Only provincial secondary highways and municipal grain roads that are deteriorating or have become unsafe as a result of increased heavy grain truck traffic are covered under the program. The PGRP will consider funding for a road directly impacted by either of the following:

- Grain Delivery Points, which have experienced or will experience a significant increase in the total volume of grain-related products handled. In addition, the delivery points must exist or be under construction and have a high probability of being viable over a minimum of 10 years.
- Grain-Related Value-Added Industries, which have experienced, or will experience, a significant increase in the volume of grain hauled into the facilities. These industries must exist or be under construction and have a high probability of being viable over a minimum of 10 years. Grain-related value-added agriculture industries include, but are not limited to, concentrated animal feeding operations (e.g. hog barns) and agricultural processing plants (e.g. ethanol plants).

Over a five-year period, from 2001-02 to 2005-06, Canada will provide a maximum of $175 million for eligible municipal road and provincial secondary highway construction projects. The funding allocations to each western province are based on the respective provincial share of the grain-dependent branch lines as listed in the Canada Transportation Act. Cost-sharing arrangements have been negotiated with the provinces

and vary with the type of roadway and province. Through federal, provincial and municipal government contributions, the PGRP will generate approximately $334 million in road construction in Western Canada, broken down as follows:

- Manitoba – Approximately $34 million in federal funds will be supplemented by provincial and municipal governments to deliver more than $66 million in program spending toward the construction and upgrading of secondary highways and municipal roads.
- Alberta – Federal contributions will total more than $32 million, triggering about $47 million in construction funds for the province's municipal road system.
- Saskatchewan – With a federal contribution of $106.8 million cost-shared with provincial and municipal governments, more that $217 million in program spending will be delivered for the construction and upgrading of secondary highways and municipal roads.
- British Columbia – Program funds totaling $2.2 million will be provided for municipal road improvements in the Peace River region of British Columbia.

9.8 British Columbia

There are no specific programs for municipal roads in British Columbia. There are however provisions regulated under the Forest Practices Code of British Columbia Act, concerning road use permits both for log haul and other related forest management uses, and for non-forest industrial use. In this particular case, the permittee may be expected to carry out improvements and maintenance and in the case where another permittee has been designated to carry out the maintenance, must reach an agreement to share road maintenance responsibilities, including costs. It should be noted that in the case of the application for a road use permit before the Oil and Gas Commission, if the road is a forest road, the provisions apply and agreements must signed.

10.0 Options for the Resolution of Road Issues in the Heavy Oil Producing Region of Saskatchewan

10.1 Introduction

As the preceding sections have indicated, the heavy oil region of Saskatchewan has a variety of transportation issues that are unique to this area due to oil industry activity. A study done by the North Central Transportation Planning Committee (NCTPC) indicates that heavy oil trucking accounts for varying amounts of traffic ranging from approximately 10 to 70 percent of the total traffic on RM roads in 2000. In RMs 469, 471, 472 and 502 (RMs identified in the study), truck traffic accounts for between 25 and 50 percent of RM road use. Although the RMs do have a larger assessment and commercial property tax base than the provincial RM average, the transportation costs for these RMs are significantly higher and challenge their ability to fund road restoration and reconstruction due to the impacts of heavy oil transportation.

It has also become apparent through the present review, that there are a number of programs available to address some of the road issues. An overall objective, regardless of any proposals that may be tabled with government, should be to share information with all RMs on the variety of programs currently available and to coordinate use of these programs. This will provide the RMs with a more complete knowledge base from which to work with the industries operating within their boundaries.

In meetings with the RMs and oil industry companies operating in the region, the position was advanced that the provincial government should assist the RMs in finding a solution to addressing the road maintenance, construction and reconstruction issues in this region. Through researching the issues, examining other provincial arrangements, and consulting with the parties involved, the Oil and Gas Committee developed a number of options to address the issues.

In October 2002 the committee met with the stakeholders (i.e., local municipalities, transportation groups and industry firms that operate in the area) in Lloydminster to listen to their feedback on each of the options developed. A summary of the feedback is provided in the following section under each option. Note that each feedback point reflects the position of a particular municipality, association or company whose representative made the comment, and does not necessarily reflect that of the entire stakeholder group.

The following options should not be considered as mutually exclusive, but as a number of potential options that could be used in combination to develop a solution that serves the interests of the oil industry, the RMs and the province. RMs may need to meet certain criteria to be able to access additional provincial or oil industry funding.

Funding for these road needs would be justified based on the significance of the heavy oil industry to the provincial economy and revenues. The oil industry is a vital economic sector to the province as a whole. The heavy oil industry, in particular, plays an important role in both the provincial and regional economy of the Lloydminster region.

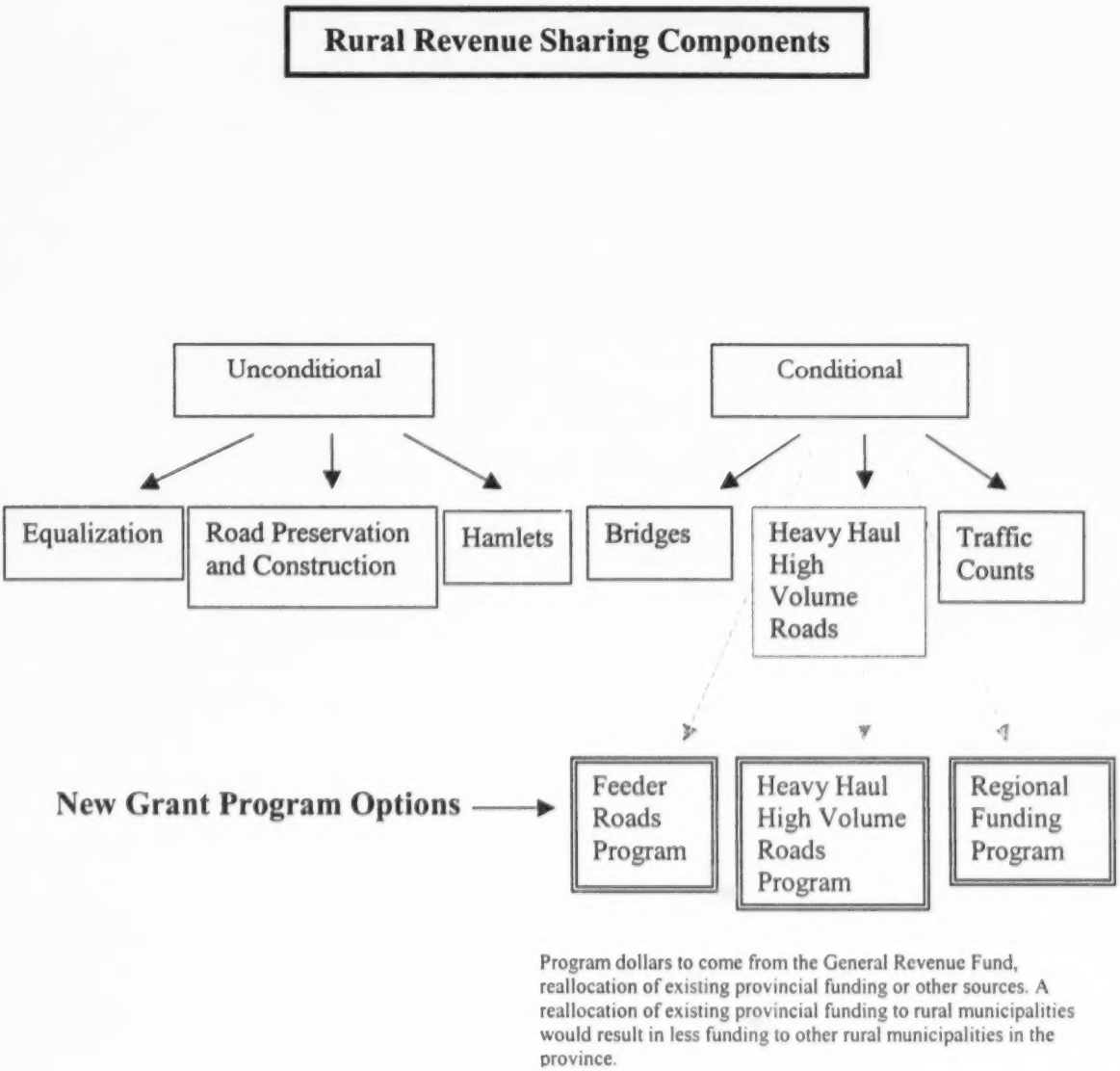
Unlike the light oil found in the southern portion of the province, heavy oil flowlining is currently not economically feasible and instead the road network essentially serves as the pipeline for the heavy oil industry. The RMs are required to maintain and construct the road infrastructure and although the revenues generated from the oil industry in terms of property taxes and other sources are significant, this amount does not appear to cover the costs for the RMs. The oil industry has indicated that a well maintained road network is vital for their business and ultimately for the expansion of the industry. The province receives revenue from heavy oil royalties and bonus bid sales. By investing some of this revenue into the municipal road infrastructure, the province could assist the economic growth of the industry.

10.2 Possible Options

The options that have been developed through this review address different road issues. They fall into four broad categories and are summarized in the following chart.

Option	Issue Addressed
Funding Initiatives	
1. Feeder Road Program	• Construction and reconstruction of feeder roads from oil wells to heavy haul network.
2. Heavy Haul High Volume Roads Program	• Targeted program funding to complete construction of heavy haul road network.
3. Regional RM Funding Program	• Provide a consolidated funding program to address heavy oil transportation concerns of RMs in an equitable and consistent manner.
Agreements to Manage Transportation	
4. Transportation Partnership Program	• A province/RM/Industry regional agreement to allow industry to access higher weights in exchange for compensation to the road authority for the additional road damage caused.
5. Regional road maintenance agreements between RMs and industry or haulers	• Changes to regulations and approach to provide compensation for and restoration of road damage and manage road use.
6. Strategic Rural Roads Partnership Program	• Truck route management to move heavy traffic off highways that cannot withstand the loading onto municipal roads that can.
7. Legislation to Enable Designation of Trucking Routes by RMs	• Traffic management to reduce/avoid adverse road impacts.
Changes in Taxation	
8. Royalty Tax Credit to Offset Road Costs	• Allow road maintenance and construction costs incurred by producers to be shared by the province.
Technology	
9. Enhanced Technology Applications	• Encourage introduction of technology changes to reduce road impacts, improve traffic management, reduce road maintenance costs, and achieve transportation efficiencies.

The following flow chart provides an illustration of how some of the suggested options could relate to the current Rural Revenue Sharing program.



Program dollars to come from the General Revenue Fund, reallocation of existing provincial funding or other sources. A reallocation of existing provincial funding to rural municipalities would result in less funding to other rural municipalities in the province.

10.2.1 Funding Initiatives

1. Feeder Road Program

Through consultation, the municipalities have indicated that road maintenance and restoration is financially challenging within the heavy oil region and that the Heavy Haul - High Volume (HH-HV) program only addresses some of the main routes. There exists an increasingly wide network of RM roads that feed traffic from well sites to the heavy haul roads and ultimately to the processing locations. These 'feeder roads' may either be new or have previously served farm access use, and now may require construction, upgrading or complete reconstruction due to heavy use and damage from oil industry hauling. This presents a major financial challenge to the RMs, as there is no specific program to fund construction or reconstruction of these roads. RMs do receive a 'road preservation and construction grant' under rural revenue sharing, but the amount is modest.

OPTION DESCRIPTION

1. Incremental provincial funding would be made available to the RMs with heavy oil activity to support the capital cost of construction or reconstruction of feeder roads within the hauling network. This would not be in the form of dedicated funding.
2. This option would fit with and complement Option 2, the enhancement of the HH-HV road program, which targets a different segment of the road infrastructure.
3. This funding option could be on a cost shared basis between the RMs, oil industry and the province, but would not exclude the possibility of other partnership agreements.
4. The cost-sharing ratio would require discussion before being determined.
5. Eligibility criteria and a prioritizing process are required to evaluate and select applications and determine the cost sharing ratio.
6. The provincial dollar contribution would be allocated to the region and distributed as a conditional grant for use in the capital cost of road construction and/or reconstruction, and would require an application process for specific sites. RMs would submit an application. Approved applications would require RMs to submit a statement verifying the feeder road construction/reconstruction.
7. This could be administered by DHT and funded by GRAA (due to legislative restrictions placed on the Minister of Highways). Alternatively this could be administered by SARM.
8. An advisory committee to the program administration could be established to provide local municipal and industry input to the application selection process.
9. The provincial contribution could be a new incrementally funded component under rural revenue sharing, or a reallocation of existing provincial funding. A reallocation of provincial funding to rural municipalities would result in less funding for other rural municipalities in the province.
10. A recognized road standard would need to be developed and adopted regionally for these feeder roads to maintain consistency in service for the road users and to ensure

IMPLICATIONS

- The incremental dollar contribution from the province would come from the General Revenue Fund. The royalties paid to the province from the oil industry go into this fund, and therefore the RMs would be indirectly receiving dollars back from the royalties generated in their region.
- If existing provincial funding is not reprioritized, there would be provincial budget implications, requiring new funding from the General Revenue Fund, and would therefore require government approval.
- The committee has suggested scalable funding, ranging from $250,000 per RM per year, to $4 million for the region per year. More work on the specific allocation of money among the RMs would be done if funding was approved.
- If funding is provided to the current Rural Revenue Sharing Program, and it is allocated across the province, the benefit to the roads in the NW region will be minimal.
- This option may set a precedent for other RMs with industry, such as forestry or intensive livestock operation.

LOCAL FEEDBACK

Municipal Feedback

- Municipalities didn't support the reallocation of funding from one RM to another under this option or any other option.
- This option doesn't assist RMs without feeder roads.
- It may be problematic to balance the needs of the small RMs with the large RMs.
- Setting priorities within the region may be problematic.
- Funding for this option needs to be distinct from funding under revenue sharing.
- Municipalities want to see more funding from the Province to address the road issues.

Oil Industry Feedback

- The oil industry prefers that their financial contributions relate to capital costs, as opposed to operating costs. This comment applies to all options where the oil industry would be contributing funding.
- Industry was concerned about the predictability of costs.
- There is an issue as to whether there would be any impact on the amount of property taxes paid by the industry if industry contributes to road construction or maintenance.
- The oil industry wants to see more funding from the Province to address the road issues.

2. *Heavy Haul High Volume Roads Program*

The Heavy Haul High Volume (HH-HV) Roads program was developed in the 1980s to financially assist municipalities with roads having heavy loads and high volumes of traffic. There are 81 RMs in the province with designated HH-HV roads, totaling 1304.8 kilometres. Six RMs in the northwest heavy oil region have designated HH-HV roads, totaling 294.4 kilometres of road or 23% of the total kilometres of HH-HV roads. These 6 RMs have received 31.4% of all the provincial moneys paid out in this program to date and 27% of the total HH-HV roads that have been completed are located within the region. Notwithstanding these values, over half of these roads still require grading and surfacing under this program at a projected cost range of $10.3 million to $32.8 million for the 11 NW RMs.

The HH-HV program has an annual budget of $1.75 million, and approves projects through an application process. DHT predicts that with current funding, it will take 50 years to complete the designated roads. No additional roads have been added to the HH-HV program because of limited funding. However, many of the currently designated roads may no longer need the designation, while others may now qualify.

The HH-HV program has several criteria for designation including space between heavy haul roads, traffic volume, surfacing requirements and linkages between heavy haul roads and the feeder system. Some of these criteria do not address the needs of the heavy oil industry and their use of the infrastructure. Further, these criteria may not address the actual roads being utilized within the RM as traffic patterns have changed since the original designation. Another consideration is the lack of funding within the program to address the current needs of the RMs within this region.

OPTION DESCRIPTION

1. Although heavy oil industry operations require a dense road network that results in almost all RM roads being used, there is some pattern of road usage. Oil must be collected from the well site and transported to a processing site and perhaps trucked from there to its point of sale. Certain roads act as collectors, from the feeder roads (roads leading to the well sites). The HH-HV program would address these collector roads.
2. The HH-HV roads program, as it currently exists, requires review against the needs of the heavy oil region, especially relating to eligibility criteria and current road usage. It may be that new roads need to be designated and current HH-HV roads no longer require the designation. The spacing criteria in particular seem to be problematic.
3. The HH-HV program, at least for those roads in the heavy oil region, would require additional funding to address the needs of both the industry and the RMs. This money could be obtained through:
    (a) reallocation of existing provincial funding; or
    (b) the addition of new money from the General Revenue Fund.

4. In a cost estimate provided by DHT, if the existing designated roads in the 11 NW RMs were brought to HH-HV standard through gravel rather than surfacing, the projected costs are $10.3 million rather than $32.8 million for surfacing. The oil industry has indicated that well designed gravel roads are sufficient for the industry.

IMPLICATIONS

- This option would require a review of the existing HH-HV program to address the criteria for designating roads. In particular, the spacing, traffic volume, surfacing and links criteria. RMs and Industry can collaborate in designating HH-HV roads.
- Roads within the heavy oil region would not require surfacing as good gravel and graded surfaces are acceptable from an industry perspective. This could reduce the costs for the program in this region and may allow for an increased number to be designated. However, this would mean that the costs for maintenance and dust control could remain high for these RMs.
- If the increased funding for HH-HV roads is to come from new money from the General Revenue Fund (i.e. the provincial budget), this will require approval from government within the budgetary process.
- If existing provincial funds are to be reallocated to fund HH-HV roads, government should consult with SARM, as a reallocation of provincial funding to rural municipalities would result in less funding for other rural municipalities in the province.
- SARM does not support setting aside a portion of the HH-HV Roads program funding for this region.
- The HH-HV program funds may have to be targeted to the heavy oil region because this is a program that responds to HH-HV needs across the province. Therefore, incremental funding won't go directly to resolve just heavy oil needs unless it's specifically targeted.
- Gravel roads may require higher on-going maintenance expenditures to maintain the level of service. This is a trade off of lower capital costs for higher maintenance costs.

LOCAL FEEDBACK

Municipal Feedback

- Municipalities do not support the reallocation of funding from one RM to another RM.

Oil Industry Feedback

- Industry is more concerned the Province provides funding to address this issue and less concerned about which funding option is chosen.
- There is a need to know what "cost" is involved in order to make an informed decision.

3. Regional RM Funding Program

RMs that host heavy oil facilities receive revenue through property taxes, as well as license fees and permits. On the fringe of this activity exist several RMs whose roads experience tremendous use, yet the RM receives little or no compensation in the form of property taxes as they have no oil assessment. It is important to address this gap in cost recovery for those RMs where heavy oil and related municipal revenues do not meet the incremental road costs attributable to the heavy oil industry.

OPTION DESCRIPTION

1. A committee would be established consisting of a representative (such as the administrator) from each RM within a defined designated area.
2. A RM could apply to the committee for financial assistance in maintaining or constructing RM roads. The committee would manage and distribute the funds.
3. The funds allocated to the defined designated area could include:
   (a) A proportion of amounts available through the Heavy Haul-High Volume Roads program;
   (b) A percentage of the tax on oil property assessments that is received by each RM within the designated area; and
   (c) Additional provincial funding amounts that could be determined in a number of ways including:
      (i) $x.xx times the number of producing wells in the designated area;
      (ii) $x.xx per cubic metre times the Crown royalty/tax share of the oil (and water?) produced;
      (iii) a levy of $x.xx per cubic metre applied to oil produced within the designated area; or
      (iv) based on a $x per cubic metre per kilometre.

4. In determining the factors to be used in the above point (iii), the initial target level of the additional funding could be determined based on the net incremental road cost required to handle heavy oil truck traffic within the defined designated area less X% of heavy oil related revenues already received by RMs within the defined designated area.
5. The "net incremental road cost" means the difference between the level of maintenance and restoration required in a defined designated area to provide a basic level of maintenance and the level of maintenance and restoration required for roads used by heavy oil trucks.

IMPLICATIONS

- Those RMs with a shortfall between oil related revenues and transportation expenditures would be provided financial assistance.
- This option would provide RMs without oil assessments with a source of additional funding for oil related transportation.

- This option would require RMs to determine the cost of transportation service for the oil industry and the non-oil property classes.
- Under this option, all property classes utilizing the transportation system would be required to pay their relative share of the maintenance and restoration costs.
- This option could require the addition of provincial funding from the General Revenue Fund, and would therefore require the approval of government.
- The RMs would have to agree to work on a regional basis and share a portion of their oil and gas assessment with other RMs in order to provide a consistent and adequate road infrastructure for the oil industry operating within the region.

LOCAL FEEDBACK

In general, the feedback indicated there was not a lot of interest in this option.

Municipal Feedback

- Municipalities expressed concern about the regional format approach under this option and the pooling of their oil and gas assessments with other RMs.
- This option primarily redistributes the existing amount of funding.
- There already is a shortage of funding that creates difficulties.

Oil Industry Feedback

- Industry's concern focussed on getting the Province to the table.
- There was concern about the consistency and co-ordination between RMs.
- The issue of ensuring the provision of an entire trucking route needs to be addressed.

10.2.2 Agreements to Manage Transportation

4. Transportation Partnership Program

DHT has developed a Transportation Partnership Program (TPP) the objectives of which are:

- To support economic development;
- To improve safety;
- To be cost neutral to the taxpayer; and
- To promote the use of more road friendly and efficient vehicles.

The purpose of the TPP is to provide shippers with a way to haul on provincial roads at a weight or length (or both) exceeding the regulated legal limit for that provincial road. In return for being allowed to haul at above the regulated legal limits for that road, the business pays a permit for each load. The permit fee is calculated in the following way:

$$\frac{\text{savings} - \text{incremental damage cost}}{2} + \text{incremental damage cost} = \text{fee}$$

The permit fee is calculated on the specific situation that the carrier or industry has.

As currently structured, the program addresses mainly construction costs, more so than maintenance costs.

OPTION DESCRIPTION

1. This option would take the current process and framework used by DHT and apply it at the RM level. DHT is investigating this further with industry and RMs.
2. The agreement would be created on a regional basis, with one set of program rules applied regionally across all RMs so that all rules and costs are consistent between RMs. It would include the province, RMs and oil industry. The rules cannot change at each RM's boundaries or else it is unworkable for industry.
3. Under this agreement, the industry would submit quarterly reports on its hauling with attached cheques for permit fees, to the Transportation Partnership Fund. This fund would make payments to the RMs.
4. The money could be targeted to particular road projects and maintenance activities, both for provincial highways and RM roads in the region, or to particular types of road projects.
5. The TPP agreement would be undertaken only with the shipper or originator (in this case the oil company), not truckers so that weight compliance could be enforced as DHT asks the shipper to impose payment limits on truckers who haul over weight. The agreement permits over weight hauling in exchange for payment of fees.
6. Compliance may need to be monitored by industry and verified by DHT. Compliance can be improved through marking trucks with permits so that other trucks hauling over limit can be targeted for enforcement. DHT also has the ability to audit carriers, assess their compliance with weight and dimension regulations and issue fines without actually having to catch them on the road. Highways Traffic Enforcement officers can also be involved.
7. Revenues gained through the program can be shared with the RMs, such as on a prorated kilometre basis using GPS results.
8. The moneys saved would be quickly reinvested to repair roads to stop compounding of the damages caused through heavy trucking. The agreement structure would have to have a clause in place to determine an acceptable length of time.
9. The agreement could include drilling activity as this period of time in oil well development has a tremendous impact on the road.
10. The agreement would include speed regulations, enforcement through the use of on board GPS and specific specifications for trucks to participate in the program.
11. CTI could be included as a requirement of the agreement and could be incorporated into the cost savings formula for the oil industry.

IMPLICATIONS

- Detailed discussions and calculations are needed to establish how much funding could be generated. DHT is gathering additional information from industry (Husky) and a municipality (Wilton) to assess the implications of applying the Transportation Partnership Program and related processes at the RM level.
- Although the costs for implementing the use of on board GPS ($1,500 to $11,000 per truck) or CTI systems ($15,000 per truck) can be significant for the industry, the TPP considers special equipment requirements as part of the formula for calculating the cost savings.
- Good records of the municipal road system and data on maintenance costs, traffic volume and truck types are required to develop the TP agreement.
- The implementation of such an agreement would require that roads are able to handle traffic to the permitted weight and that all bridges be checked for bridge strength to ensure the structures can withstand the weights.
- The safety and stability of vehicles will have to be assessed by DHT.
- The RMs would need to decide on the use or non-use of road bans, on a regional basis.
- The RMs would have to agree to a regionally based program and targeted dollars for road maintenance and construction projects.
- Consideration of a complete route from the point of origin to final destination is necessary.

LOCAL FEEDBACK

Municipal Feedback

- Municipalities are not interested in changing DHT's programs around. Municipalities indicated the issue is that the province needs to be involved financially.

Oil Industry Feedback

- Industry indicated that changes to contracts with haulers would be needed under this option, especially to address variable rates associated with road and weather conditions.
- There is concern that this is simply another form of taxation on the industry.
- Industry expressed concern that enforcement would be an issue. All companies, large and small, need to be involved. This needs to be a universal type of program.

North Central Transportation Planning Committee Report (Appendix 1)

- Page ii of the NCTPC's report considers ways to improve the level of service on municipal roads, including negotiations between RMs and oil companies of partnership agreements to generate funds by improving the level of service and allowing higher weights.

WCMGC – Transportation Sub-committee Report (Appendix 2)

- Page iv of WCMGC's report includes a discussion of improvements to the roadways' structural capacity. It states *"However, due to the limitation of budget resources, alternate strategies such as municipal truck route partnerships, may be required to sustain select non-structural surfaced roadways until funding becomes available for the required structural upgrade."*

5. Regional Road Maintenance Agreements between RMs and Industry or Haulers

Within provincial legislation and regulations, municipalities currently possess the authority to enter into Haul Road Maintenance agreements with either the haulers or producer to seek compensation for extraordinary damages caused to the roads. The sheer volume of traffic in the heavy oil region implies extra effort in enforcing and administering the agreements than might otherwise be the case, as they are currently structured in the legislation and regulations. However, as demonstrated in the RM of Lomond No. 37, with some adjustments to the current regulation, it could be easier to enforce these agreements and less difficult for either the company or the RM to administer them.

OPTION DESCRIPTION

1. To address industry concerns about consistency between RMs, the same road maintenance agreement would be applied on a regional basis with the RMs that constitute the heavy oil region being signatories to the agreement. The agreements would be with the producer rather than the hauler. Each RM within the region would then have the same agreements applied with each company, with the same rates and conditions.
2. As an incentive for the trucking companies hauling for the oil industry, RMs could permit companies entering into the road maintenance agreements the ability to haul over weight volumes and/or eliminate the use of seasonal road bans.
3. Under regulation, the RM could only use these agreements to cover the incremental damages caused through heavy hauling. The amount paid in property taxes by the oil industry is to cover the cost of normal road usage.
4. The rate would be set to yield revenue for the extraordinary use and damage caused by heavy hauls, but not exceeding what is required to finance the required repairs.
5. A formula would be required to determine an amount. The RM of Lomond's approach could be used as a starting point. This would be based on a rate set to reflect actual damage and an average haul distance for the heavy oil region. The North Central Transportation Planning Committee reports estimate the average haul distance in the heavy oil area to be around 15 kilometres for oil.

IMPLICATIONS

- By utilizing a road maintenance agreement, the RMs would be provided with a stream of revenue that would go towards addressing the costs of road reconstruction, due to road damage caused by the oil industry.
- The current legislation and regulations pertaining to the Haul Road Maintenance Agreements would have to be amended in the following ways:
  - Only one rate would be applied to either an agreed average distance or the amount of product moved (i.e. volume). The rate needs to be set to reflect the cost of repairing road damage caused by the industry, not maintenance costs since these should be covered by property tax. In the case of the RM of Lomond, the total oil or water volume hauled is multiplied by a rate of 3.84¢ per 4 mile average distance, or 15.36¢ per volume hauled. Service rig and drilling rig movements would have to be reflected in the rate set;
  - The regulation should clearly make the link that the parties being charged are the parties causing the extraordinary road damage, even if the cost is spread over all of them collectively;
  - The regulations could include a form that would allow the RMs to collect the fees from each company on a monthly basis;
  - The regulation would enable a single regional agreement with all 11 RMs as signatories to the agreement, if not already available under Section 254 of *The Rural Municipal Act, 1989*;
  - The agreements could be between the trucking firm, the producer or the buyer and the RMs. In this case they would be with the producers. The regulations would require amending to allow RMs to charge the shippers; and
  - There must be clarification of the legal basis for imposition of the agreement, including authority to tie it to road weights.

- Municipalities have indicated that they also want the maximum compensation rates established under the regulations to be increased, as the rates do not cover the damage caused by continued heavy loads on municipal roads. At SARM's mid-term convention in November 2002, a resolution to this effect was carried. As a result, SARM will take this resolution forward to government.
- A formula to distribute the moneys collected among RMs would be needed if a regional agreement is achieved.
- Making road maintenance agreements more applicable to the heavy oil area would benefit municipalities that have little amounts of heavy oil property tax assessment but large volumes of heavy oil haul traffic.
- The option would only cover the incremental road maintenance, damages and loss of road life, not everyday road use.
- To make the use of road maintenance agreements a viable option from an industry perspective, a reasonable dollar value must be determined that includes the incremental costs of repairing road damage, but not more.

- The incremental cost difference could be calculated as the approximate number of miles in the RM used by the industry, multiplied by the incremental cost difference due to the cost of repairing damages. This means separating this cost out from maintenance costs that may be higher due to the presence of the industry, but would be covered by property tax.
- As in the RM of Lomond, an average road haul distance and rate could be determined and applied to the total volumes of oil and water hauled. In the example provided in the table, the current winter hauling rate (1.395¢ per cubic meter) has been applied to an average hauling distance of 5 miles.
- Industry would look for assurances that this user-pay approach would not be in addition to higher mill rate factors so that industry "pays twice" for incremental costs.
- The province contributes to the cost of third party road maintenance agreements between municipalities and oil trucking companies or oil producers. If an agreement is tied directly to transporting oil from a well location to the sale location of the oil, all or a portion of the transportation cost is deductible in determining the price of the Crown's share of the oil. See the example under section 7.0 of this report. It was suggested that this be expanded to include sand and water hauling, in addition to the transporting of oil.
- Any changes in the haul road regulations would have to be acceptable to other users of RM roads that haul bulk commodities, if the changes to the regulations are mandatory in nature. If the changes are enabling, this would not be a concern.

LOCAL FEEDBACK

Municipal Feedback

- In general, municipalities indicated the effectiveness of using road maintenance agreements to solve road issues in the heavy oil region is very limited.
- The ability for municipalities to enter into agreements respecting weight provisions could be beneficial.
- Municipalities raised the issue of sensitivity of tradeoffs with other areas (e.g., funding for roads instead of health care).
- This addresses the issue of heavy haul vehicles but doesn't address the issue of the high number of service vehicles.
- Municipalities felt this option puts financial burden on the industry.

Oil Industry Feedback

- Industry is concerned this imposes another tax on industry.
- There is a need for provincial funding of this option.
- Industry wants assurance that money collected will be targeted to address road issues.
- This option could be combined with another option.

North Central Transportation Planning Committee Report (Appendix 1)

- Page ii of the NCTPC's report considers ways to improve the level of service on municipal roads, including negotiations between RMs and oil companies of partnership agreements to generate funds by improving the level of service and allowing higher weights.

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6. Strategic Rural Roads Partnership Program

Through the Strategic Rural Roads Partnership Program, DHT works with local governments, industry and Area Transportation Planning Committees to identify opportunities for commercial route management. These initiatives mitigate damage to TMS highways by creating designated truck haul routes on the municipal road system. This preserves the condition of the TMS road for cars and light trucks. The department uses the incremental funding to offset any additional costs incurred by the local municipality from the increased truck traffic.

Under this program, the municipalities within the northwest region are able to access funding for reconstruction to heavy haul standard and maintenance of specified road routes. Several of these arrangements are in place throughout Saskatchewan and appear to serve the municipalities well.

OPTION DESCRIPTION

1. As part of a truck management strategy, the RMs, in consultation with DHT, could partner on appropriate municipal roads that serve the heavy oil industry, to bring the infrastructure to an appropriate standard to serve heavy trucking usage.

IMPLICATIONS

- The RM and DHT must be in agreement as to which roads are appropriate for the program.
- This would provide the RMs with another method of cost sharing to bring selected roads to an acceptable standard for both heavy oil industry and other users.
- It could require a regional approach so that the transportation service is consistent between RMs.

- This option has limited applicability in the Lloydminster area (i.e. only Highway #21 north of Highway #3). The Transportation Planning Committee reports do identify other highways, but they are outside the heavy oil area.

LOCAL FEEDBACK

As this option has extremely limited applicability in the area, there wasn't any feedback provided on it.

7. Designation of Trucking Routes

Currently RMs do not have the legislative capacity to designate trucking routes. This restricts a RM's ability to manage truck traffic, to protect RM roads and to develop long term planning and prioritize for road maintenance, reconstruction or construction of new roads. Within a heavy oil RM, it is difficult to designate a specific hauling route within the complex network of the well field. However, trucking companies are interested in hauling their product in the most efficient (i.e. limited impact on the vehicle, reasonable speed, safety, and accessibility) manner possible, resulting in fairly consistent travel patterns as long as the road remains good.

OPTION DESCRIPTION

1. Legislation would be changed to allow RMs to designate trucking routes, with or without the ability to truck higher weights. This would be an amendment to *The Rural Municipality Act, 1989.*
2. Once designated, those roads could be reconstructed (perhaps under the HH-HV program) to withstand increased traffic and load.
3. Designation should be done by RMs within a regional context to ensure that the routes connect as required.

IMPLICATIONS

- This would not address the issue of feeder roads (from well site to batteries or other points) but could contain road impacts from high volume heavy weights to specific routes.
- A designated route would not solve the issues on its own, but in combination with the other options discussed (especially the HH-HV road program) this would assist the RMs in managing traffic and planning road maintenance.
- Legislation changes of this sort could require DHT approval.
- This could reduce the number of roads that would require reconstruction and or extra-ordinary maintenance due to heavy trucking.
- RMs would have to undertake analysis to designate routes that would work for both the municipality and the industry.

- RMs will have to cooperate regionally to ensure continuity of truck routes to serve the industry. Truck routes cannot simply end at RM boundaries or truckers will not use them.
- Truck routes would require enforcement. RMs will have to be prepared for this, although the oil industry may be able to assist. Installation of GPS on board trucks would make enforcement easier but would require industry support.

LOCAL FEEDBACK

Municipal Feedback

- The municipalities have examples of success stories related to designated routes.
- There was general support for this option.

Oil Industry Feedback

- This option is being looked at very closely by industry.
- There is industry support for this option, provided that designated routes connect from one RM to the next.

North Central Transportation Planning Committee (Appendix 1)

- Page ii of the NCTPC's report considers ways to improve the level of service on municipal roads, including designation of truck routes. It states "*Designating truck routes may not be an easy task due to the dispersed location of wells, but it could be tried on a few roads.*"

10.2.3 Changes in Taxation

8. Royalty Tax Credit to Offset Road Costs

The province receives a considerable amount in revenue from the oil industry through the Crown royalty and freehold production taxes and the corporate capital taxes. The municipalities' view is that they are responsible for the infrastructure that supports the industry, which provides the revenue for the province, and therefore they should be entitled to some of that revenue to help fund the costs of maintaining or creating the needed infrastructure.

The province currently has a royalty tax credit program in place called the Saskatchewan Petroleum Research Incentive Program. This program encourages research, development and demonstration of new technologies related to oil and natural gas activities such as exploration, production, treatment, transportation, upgrading, processing, and refining. Companies incurring such oil and gas research costs can apply under the program to have

a portion of the costs credited towards future Crown royalties or freehold production taxes on oil and gas produced in the province. Appendix 7 contains further details about this program.

OPTION DESCRIPTION

1. In many cases, oil companies cost share with RMs on road projects. Under this sub-option, the oil companies could receive recognition of their participation by receiving a credit on the royalties they pay to the provincial government. In this way the province would be investing money in the heavy oil "pipeline".
2. The oil companies operating within an RM would enter into cost sharing partnerships with the RM to either construct or maintain a particular road segment or route utilized for heavy oil transportation.
3. The actual cost sharing would be reflective of the company's incremental use and take into consideration the amount of municipal property tax being paid.
4. The oil company could then apply to the province to receive a credit on the royalties paid in the amount that was cost shared with the RM.

IMPLICATIONS

- The RM would receive incremental funding for damage caused to its road infrastructure.
- The oil industry would have a road system that adequately serves their needs, while receiving a tax credit on the amount of royalties paid.
- The program design will need to be established to set parameters, such as:
  - an approval process (that may utilize a regional committee rather than Finance's prior approval);
  - eligibility criteria (eligible costs, oil types, etc.)
  - limitations (percentage of costs eligible, annual maximum on total credits, the timelines of the program); and
  - supporting documentation required.
- There may be pressure from stakeholders, such as RMs, industry and SARM, for a broader application of the program, as this would be targeted at only the heavy oil producing areas in the province.
- Royalty revenue received by the provincial government would be reduced by the amount of tax credits provided.
- A reduction in royalties would have an impact on the amount the province receives in federal equalization payments. If there were a reduction in the royalties the province receives from heavy oil production, there would be a modest increase in the Equalization entitlements to Saskatchewan. For example, a reduction of $1 in heavy oil royalties resulting from a reduction in the Crown royalty or freehold production tax rate would result in increased Equalization entitlements to Saskatchewan of approximately 10 to 20 cents.

- Equalization is a federal spending program which is designed to "top up" the revenues of provinces which are defined as "have-not" provinces to an average level which is defined in the Equalization formula. This is designed to allow all provinces to provide reasonably comparable levels of public services at reasonably comparable levels of taxation. The determination of payments to provinces under the formula is a very complex calculation which is constantly changing due to changing economic variables, however in general terms an increase in a province's own-source revenues will result in a reduction in some of its Equalization entitlements, and vice versa. For more detail on how the Equalization program works, the reader is directed to the following federal government website - http://www.fin.gc.ca/activty/fedprov-e.html.
- There is a precedent for the use of a royalty tax credit program to offset costs in the oil and gas industry through the existing Saskatchewan Petroleum Research Incentive Program.
- The income tax consequences on industry need to be looked into.
- Approximately 30% of the heavy oil in the province is produced from freehold lands and the province essentially receives no production tax revenue from new heavy oil wells drilled on these lands. A royalty, however, is paid on this oil to the freehold mineral owner. Therefore, consideration needs to be given to whether a royalty tax credit program should apply to freehold heavy oil.

LOCAL FEEDBACK

In general, this option received the most collective support from municipalities and industry, among all the options.

Municipal Feedback

- Municipalities generally expressed interest in this option.
- There was the concern that money needs to be targeted to address priority road issues.
- Municipalities stated that this option costs the province up to 20% less (due to the impact of an increase in equalization payments).

Oil Industry Feedback

- In general, industry was interested in this option.
- There was a concern raised that this option could be cumbersome and puts industry at the mercy of RMs.
- Industry expressed some concern about potential income tax consequences.

10.2.4 Technology

9. Enhanced Technological Applications

Through consultation with the RMs and oil industry, it is apparent that there are a number of ways that both parties can utilize various technologies to maximize road use efficiencies and minimize costs over the long term. A variety of issues could be addressed through the application of currently not used technologies, such as:

- Monitoring adherence to truck weight and speed limits through the use of on vehicle Global Positioning Systems (GPS) and road conditions through monitors imbedded in the roads. Exceeding speed limits increases dust, reduces safety and increases damage to roads;
- decreasing the negative impact of heavy loads through different vehicle and tire configurations, and installation of CTI on trucks;
- permitting road usage during currently banned periods through the use of PSI technologies and load management systems;
- utilizing new technologies for water and sand disposal at well sites; and
- flowlining.

Much of this technology is not utilized or in some cases, developed at this point.

OPTION DESCRIPTION

1. Under this option, oil companies could receive financial incentives for the development and use of various technological applications through permits to haul over weight and through the elimination of road bans.
2. RMs could receive grants to assist with the implementation of various technologies, such as PSI and Load Management Systems.
3. The province could contribute in a cost sharing formula with industry and RMs to implement various technological based programs that aid in the reduction of road maintenance costs. The cost-sharing ratio and requirements would need to be determined.

IMPLICATIONS

- If the province were to contribute to this option, it would require approval through the government's budget process.
- Some funding may already be available under the Saskatchewan Petroleum Research Incentive Program.
- The use of new technology should be initiated by industry, on the basis of the new technology's own economic merit.
- There may be a role for COPATA in encouraging trucking firms to adopt new technology or sponsoring initiatives with RMs.

- RMs and industry would need to continue working together to develop a route management system that serves their interests and needs.
- RMs and industry would have to be prepared to use the information provided by n:)nitoring and actively manage the transportation infrastructure and its use based on this information. This can be related to other options described in this paper involving strategies for transportation management.
- Industry would have to take an active role in managing road use by truckers hired by the oil industry. The industry is best positioned to do this and to insist that new technology is adopted and installed on trucks servicing the industry.

LOCAL FEEDBACK

Municipal Feedback

- There were some safety concerns raised.

Oil Industry Feedback

- Industry has concerns regarding safety.
- It is important that all oil companies participate in this initiative.
- Industry stated it might be difficult to obtain compliance from truckers.

11.0 Recommendations

11.1 Introduction

After receiving feedback on each option from the municipal and industry stakeholders the committee agreed to put forward six of the options for the government to consider. The proposals are not mutually exclusive. Some can stand on their own, while others can be used in combination in working towards a solution to address the road maintenance, construction and reconstruction issues in the NW region.

11.2.1 Financial Proposals

1. Feeder Road Program

The committee proposes that the government consider providing incremental provincial funding to assist rural municipalities with the cost of constructing and maintaining an increasingly wide network of RM roads that feed traffic from well sites to the heavy haul roads. A grid road standard could be set as the minimum road standard under this initiative.

This initiative:

- Requires incremental provincial funding.
- Requires the development of eligibility criteria, a prioritizing process, time limits and financial limits that reflect the incremental provincial funding.
- Can be undertaken separately from other initiatives, or in conjunction with others.

2. Heavy Haul High Volume Roads Program

The committee proposes that the government consider:

- Reviewing and updating the criteria for designation of roads under the Heavy Haul High Volume roads program to reflect the current needs of the heavy oil industry and their use of the infrastructure; and
- Incremental provincial funding to support this initiative.

This initiative:

- Requires significant incremental provincial funding to have an impact on resolving this issue because the HH-HV funding is allocated across the province and not targeted to the heavy oil roads issue.
- Requires a review of the current HH-HV roads program, especially the eligibility criteria for designation and current road usage.
- Will update the HH-HV program from the 1980's to reflect the current situation.
- May result in different roads being designated than those currently designated. Lower cost roads, such as good gravel and graded surfaces, are acceptable to industry operating in this region and may result in cost savings to use in designating additional roads.
- Can be undertaken separately from other proposals, or in conjunction with others.

3. Transportation Partnership Program

The committee proposes that the government consider utilizing DHT's current Transportation Partnership Program to include rural municipal roads. This will allow shippers to haul on municipal roads at a weight or length exceeding the regulated legal limit for that road. In return, the business pays a permit fee for each load, which in turn would be used for RM roads in the region.

This initiative:

- Provides an optional tool for municipalities to use in addressing the heavy haul road issues.
- Requires negotiation of a regional agreement, with rules applied to all RMs in the region.
- Does not require incremental funding.

- Does not require legislative changes.
- Utilizes DHT's existing Transportation Partnership Program to extend the program to include municipal roads (from only DHT's highways).
- Utilizes the expertise of existing DHT staff and current administrative processes.
- Is subject to the results of DHT's cost-benefit analysis.
- Can be undertaken separately from other initiatives, or in conjunction with others.

4. Royalty Tax Credit Program

The committee proposes that the government consider a new royalty tax credit program designed to encourage oil companies to enter into cost sharing partnerships with rural municipalities to either construct or maintain a particular road segment or route utilized for heavy oil transportation.

This initiative:

- Requires the development and implementation of a new tax credit program, including eligibility criteria, time limits and financial limits that reflect the incremental provincial funding.
- Requires an estimation of the program's cost.
- Received the most support of the nine options discussed with industry and municipal stakeholders.
- Can be undertaken separately from other initiatives, or in conjunction with others.

The committee concluded that a specific estimate of the costs to address road issues identified in this report is needed. The information was not available at the time of writing and the committee suggests that further work needed in this regard be provided by GRAA.

The committee believes that the proposals can still be considered despite not having an estimation of total potential costs attached. It is likely that the cost will exceed the available resources. Consideration of the issues and a commitment of a certain amount of funding are a step towards addressing the road issues in the NW region.

11.2.2 Legislative Proposals

5. Regional Road Maintenance Agreements between RMs and Industry or Haulers

The committee proposes that the government consider approval of amendments to the legislation and regulations governing Haul Road Maintenance Agreements, whereby RMs enter into agreements with either haulers or producers to seek compensation for extraordinary damages caused to the roads. The amendments will make it easier for industry and municipalities to administer and enforce the agreements.

The amendments to the legislation and regulations pertaining to the Haul Road Maintenance Agreements would be structured such that:

- Only one rate is applied to either an agreed average distance or the amount of product moved (i.e. volume). The rate reflects the cost of repairing road damage caused by the industry, not maintenance costs since these should be covered by property tax. Service rig and drilling rig movements would have to be reflected in the rate set;
- The regulations clearly link the parties being charged to the parties causing the extraordinary road damage, even if the cost is spread over all of them collectively;
- The regulations include a form that allows RMs to collect the fees from each company on a monthly basis;
- The regulations enable a single regional agreement with all 11 RMs as signatories to the agreement, if not already available under Section 254 of *The Rural Municipal Act, 1989*;
- The regulations enable an agreement between the trucking firm, the producer (shipper) or the buyer and the RMs. In this case the agreement would be with the producers; and
- Clarification of the legal basis for imposition of the agreement, including authority to tie it to road weights, is established.

This initiative:

- Requires amendments to legislation and regulations. It is necessary to ensure that amendments do not jeopardise existing agreements made under the current provisions of the legislation and regulations.
- Does not require incremental provincial funding.
- Provides a tool for municipalities to use in addressing the heavy haul road issues. Revenues generated under this initiative are to cover incremental damages caused through heavy oil hauling.
- Requires negotiation of a regional agreement, with rules applied to all RMs in the region and all firms operating in the region.
- Could be facilitated by NW municipal association.
- Will be more difficult to implement than the TPP initiative due to the need for legislative and regulation changes.
- Can be undertaken separately from other initiatives, or in conjunction with others.

6. Legislation to Enable Designation of Trucking Routes by RMs

The committee proposes that the government consider approval of an amendment to *The Rural Municipality Act, 1989* to provide RMs with the authority to designate trucking routes, with or without the ability to truck higher weights. This change will improve the RM's ability to manage truck traffic, to protect RM roads and to plan for road maintenance, reconstruction or construction of new roads.

This initiative:

- Requires an amendment to *The Rural Municipality Act, 1989.*
- Provides an optional tool for municipalities to use in addressing the heavy haul road issues.
- Does not require incremental funding.
- Needs to be done on a regional RM basis to ensure continuity of truck routes to serve the industry, and therefore requires industry consultation.
- Needs a mechanism to encourage traffic to use designated truck route e.g., weight provisions.
- Should be undertaken in conjunction with other initiatives, such as the HH-HV road program, to assist RMs in managing traffic and planning road maintenance.

Appendices

Appendix 1 Executive Summary of the *Impact of Heavy Oil Development on Municipal Roads in Northwest Saskatchewan*, February 2002, North Central Transportation Planning Committee

Appendix 2 Executive Summary of the *West Central Municipal Government Committee – Transportation Subcommittee Year 2001 Transportation Management Plan*

Appendix 3 Saskatchewan Heavy "Oil Wells" by Productivity Range

Appendix 4 Crude Oil - Provincial Revenue Comparison

Appendix 5 Royalty Incentive Volumes for New Oil Wells Drilled on or after October 1, 2002

Appendix 6 Alberta Draft Trial Road Notification and Repair Agreement

Appendix 7 The Saskatchewan Petroleum Research Incentive Program

Appendix 1

Executive Summary of the *Impact of Heavy Oil Development on Municipal Roads in Northwest Saskatchewan*, February 2002, North Central Transportation Planning Committee

Executive Summary

The purpose of this report is to discuss and highlight some of the unique impacts that heavy oil extraction has on roads. Much of the report is an update to the 1986 report titled "The Impact of Heavy Oil Development on Highways and Municipal Roads in Saskatchewan" as prepared for Saskatchewan Energy and Mines, Saskatchewan Highways and Transportation and Saskatchewan Rural Development. The previous study assessed the impact of heavy oil development on municipal roads within six Rural Municipalities (RMs) in the west central area of Saskatchewan and compared the data with light/medium oil development RMs and agriculture based RMs.

The scope of this study was extended to six more RMs with heavy oil development in the west central part of the province. The data is compared with four agriculture based RMs located in the centre of province. The data presented in this study was acquired from Saskatchewan Energy and Mine and the Department of Highways & Transportation.

Heavy truck traffic is one of the main factors in assessing the impact on the municipal road system. The quantities of oil and fluid produced in RMs and the traffic generated on roads are inter-related. Traffic volumes in the Study RMs in 2000 varied between 10 – 700 vehicles per day. Very few roads carried traffic between 400 – 600 vehicles per day. Most of the RM roads carried traffic less than 100 vehicles per day with the exception of a few roads in the range of 150 – 250 vehicles per day. The traffic volumes from the 2000 counting period was compared with 1995 and 1990 periods. An increase of 0 – 4% annually in the traffic volume was noticed in most of the RMs with the exception of the RM of Britannia where the increase was 7.3% annually. The average growth of traffic on most of the provincial highway system is between 3 – 5% annually. The ratio of commercial to non-commercial traffic is high in RMs with intense oil activities. Some roads carry almost 50% commercial traffic. A high percentage of commercial traffic is observed in RMs 469, 471, 472 and 502. A comparison of the existing commercial truck percent with the 1986 study results shows that the commercial percent is similar, except for the RM of Frenchman Butte where the truck traffic doubled in 15 years. Overall the 2000 counts show that the commercial truck traffic in the heavy oil RMs is in the range of 12 – 39%.

Saskatchewan produces approximately 20% of Canadian crude oil. The majority of the oil produced is exported to United States. The oil reserves in Saskatchewan are divided into four areas, such as Lloydminster (AREA I), Kindersley-Kerrobert (AREA II), Swift Current (AREA III) and Estevan-Weyburn (AREA IV). The scope of this study is limited to AREA I which produces heavy oil. The gravity/viscosity of this oil is high and produces an equal or more amount of water during production.

Oil production in AREA I tripled from 1986 to 2000. This increase can be seen through the number of active wells that doubled in 15 years. There were about 3000 wells producing oil in 1986 and that number is at 6,400 in 2000. The number of wells drilled in Saskatchewan reached a record level of 2,400 wells in 2000. Traffic volumes from oil related activities in 2000 were estimated by traffic generation during drilling, production start-up, production and servicing activities. About 75% of vehicle kilometres/year occurred during the production phase, and drilling activities account for about 15%. The amount of fluid hauled on roads varied from RM to RM. In this report it was assumed that 50% of fluid produced in the RMs is hauled on roads and the remaining 50% is piped to batteries. The number of oil batteries in a RM can reduce the impact of heavy traffic on RM roads.

The total transportation expenditures of heavy oil development also varies from one RM to another. RMs with more producing wells tend to have higher transportation expenditures than RMs where oil activities are limited or declining. The transportation expenditures of RMs 471, 472, 501 and 502 in 2000 were at least one million dollars each. These RMs have 1,000 or more active oil wells within their RM boundaries. These RMs produced about 70% of crude oil from the Study Area. The length of main roads (Primary grid, Special grid, Grid and Main Farm Access) in these RMs is between 232 – 281 km.

RM transportation expenditures are usually based on revenues generated by RMs through land taxes, the leasing of land and royalties from economic activities. RMs with limited oil related traffic state that they do not generate enough oil related revenues to upgrade or maintain their roads. RMs generating more oil revenues then others state that they are unable to upgrade or sufficiently maintain roads impacted by increased oil traffic. The oil revenues generated by the Study RMs are not available at this time.

In order to improve the level of service on municipal roads, it is important for RMs to utilize all the transportation funds received through government grants and compensation from oil companies into their transportation infrastructure. RMs may establish a program which provides them flexibility in delivering transportation projects when appropriate funds are not available to maintain roads. RMs may negotiate partnership agreements with oil companies to generate funds by improving the level of service and allowing higher weights. RMs may also designate truck routes. Designating truck routes may not be an easy task due to the dispersed location of wells, but it could be tried on a few roads.

The traffic volume and commercial traffic data indicates that most of the truck traffic is observed on the main municipal system, such as Primary Grid, Special Grid, Grid and Main Farm Access roads. The municipalities have to invest more funds in the main municipal system to maintain an acceptable level of service. Better planning will be required to utilize funds appropriately by spending where the traffic demand is high. This can be achieved by assessing the future oil traffic and its impact on roads through discussion with oil companies about the remaining oil reserves in the RM and years of operation.

Appendix 2

Executive Summary of the *West Central Municipal Government Committee – Transportation Subcommittee Year 2001 Transportation Management Plan*

EXECUTIVE SUMMARY

The West Central Municipal Government Committee - Transportation Subcommittee (WCMGC-TS) represents the West Central area of Saskatchewan in developing a sustainable transportation network plan. The WCMGC-TS provides local authorities and the Province a framework for working together and establishing a common direction to sustain and enhance the transportation network.

In 1997 the WCMGC-TS committee completed a transportation management plan for the area. The document was titled "Moving with the Times." The study focused mainly on the grain agriculture traffic component.

The purpose of this study is to update the 1997 plan for a five year period from the current year 2001 to year 2006. The study will focus on all heavy haul traffic. The study reviews industry shifts leading to changes in heavy haul travel patterns. From the anticipated changes in heavy haul patterns, impacts to the roadways will be determined to identify potential areas of systems improvements and priorities. Information included in this document is current to April 1, 2001.

The WCMG-TS is an advisory group to the jurisdictional authorities responsible for the roadways in this area. Actual implementation of any recommendations of this report is the responsibility of the associated municipality or the Province.

The study began with an industry assessment of the major industry sectors for the area. In the grain agriculture sector, elevator consolidation and rail line abandonment is causing a redistribution of grain haul patterns. With elimination of local elevators, grain haul is traveling farther distances to access the larger terminal centres. Currently there are 77 elevators and terminals in operation, with a combined capacity of almost 900,000 tonnes. It is expected that by 2006, 54 will have been decommissioned leaving 23 to handle the demand.

The industry sector of strongest growth is oil and gas. Economic forecasts are predicting a 10% annual growth in oil well drilling activity. Gas well drilling activity is expected to increase by 50% per year. Oil well activity is currently ten-times greater than gas well activity. In the heavy oil areas, which dominate this part of the province, truck haul is required to deliver the oil from the well sites to the batteries. Batteries transport the crude to pipeline injection sites on the main lines to refinery and upgrading facilities. In

the heavy oil industry, heavy haul traffic is generated from water and sand disposal, service vehicles, and drilling. Gas and light oil haul activity is primarily service and drilling. Never-the-less, the combined impact of both oil and gas activities is expected to contribute to significant traffic increases in the west part of the planning area from Kindersley to Lloydminster. Figure i illustrates the future industry projections for the area.

The impact on the road system is a combination of the changes in heavy haul traffic, the type of the roadway surface, and the condition of the road surface. The impact measurement is the incremental cost to sustain the roadway in it's existing condition due to the projected five-year increase in heavy haul traffic.

An impact evaluation of each roadway segment is compiled through a computer program called the "Municipal Infrastructure Management System" (MIMS). MIMS provides a life-cycle assessment of the roadway segments analyzing combinations of maintenance and upgrading treatments required to sustain roadways according to the treatment strategies and levels of service requirements input into the model.

To measure the impacting cost, MIMS uses the combination of traffic, road types, the surface condition, and upgrading and maintenance practices to predict the associated costs with shifts in the haul patterns. Even a small shift on a non-structural surfaced road segment can have an impact on resources required to upgrade and sustain these sensitive road segments.

The MIMS model is applied to 3,825 km of roads within the West-Central area (2966 km Provincial and 859 km Municipal). A 15-year life-cycle for the roads was used to model the infrastructure. 15 years is standard in Saskatchewan for pavement designs. From the 15-year model results, the analysis considers the first five years in determining the projected impact between year 2001 and year 2006.

The following table summarizes the impact analysis results by road surface type for the area. Included are both provincial and municipal roadways expecting the higher heavy haul traffic.

Table i - Summary of Impact Analysis

IMPACT ANALYSIS SUMMARY RESULTS										
Initial Condition				Impact Analysis						
				Base Scenario			Increased Traffic Scenario			Impact
Surface Type	Length (km)	Initial WDV ($ 1,000)	Unit WDV ($1,000/km)	5-year Treatment Cost ($1,000)	WDV Change ($1,000)	Adj. Cost ($1,000)	5-year Treatment Cost ($1,000)	WDV Change ($1,000)	Adj. Cost ($1,000)	Cost ($1,000)
Asphalt Concrete Pavement	(1335) 1350	39564	29.3	37599	-19043	18556	47012	-11537	35475	16919
Sealed Granular Base Pavement	(495) 500	14084	28.2	13310	-3104	10206	21883	-1813	20070	9864
Thin Membrane Structure	(989) 1000	49377	49.4	55778	-35154	20624	71076	-30752	40324	19700
Gravel - Provincial	(113) 115	901	7.8	769	-183	586	2212	-143	2069	1483
Gravel - Municipal	(859) 860	6,970 (estimated)	8.1	4338	-388	3950	22201	1180	23381	19431
TOTAL	3825	110896	-	111794	-57872	53922	164384	-43065	121319	$67,397

* WDV = Write Down Value

In review of the West Central area as a whole, 3,825 km of roads were considered in the analysis. The analysis considered the additional treatment cost resulting from projected increases in heavy haul traffic. Because these increased projected expenditures may alter the existing level of service on the roadways, the costs were adjusted from the modeled changes in roadway asset valuation. This will ensure a common comparison of the base

case scenario to the increased traffic scenario. Therefore, the true cost considers both the treatment expenditures and the changed asset valuation (level of service) expected from traffic, road type, condition, and operations practices to maintain and upgrade the roadways. The impact from the increased heavy haul traffic is the difference between the existing traffic base case to the increased traffic scenario. Of the 3825 km of roads analyzed, the total 5-year impact cost is $67,397,000. This is the incremental cost due to expected increases in heavy haul traffic for the area.

In addition, the impact analysis also determined the most cost effective treatment strategy to preserve these roadways through their life cycle could cost $164,384,000 over the 5-year period. With this level of expenditure on the 3,825 km analyzed, the resulting roadway improvements are projected to be 39% above the current condition state. However, the area as a whole includes a vast number of low volume roads that require routine upgrading and maintenance expenditures that were not included in the analysis.

Working towards improving the roadways structural capacity will save excessive maintenance expenditures on the roadways not designed for heavy haul traffic. Working towards the 39% level of service improvement may be a goal of the West Central planning area. However, due to the limitation of budget resources, alternate strategies such as municipal truck route partnerships, may be required to sustain select non-structural surfaced roadways until funding becomes available for the required structural upgrade.

The analysis also determined that significant impacts may occur in areas of oil and gas activity. The activity of heavy haul traffic is relatively localized between the oil wells, batteries, and pipeline injection facilities. Due to strong projected growth in this industry sector, a significant amount of impact is occurring to the non-structural surfaced roadways, provincial roadways, and municipal gravel roadways.

Industry is essential to sustain the growth of communities in the area. However, communities provide the transportation network and other infrastructure required for industry to prosper. In the area of oil and gas activity, this study identifies 1420 km of roadways varying in surface type (i.e. pavements, TMS, gravel) and condition. Of these roadways, the total incremental impact cost due to increases in heavy haul traffic over the next five years is expected at $46,619,000. Given that a significant amount of revenue is being generated by industry and the Province through oil and gas royalties, it is recommended the committee seek recovery of the impact cost to the roadways. The

roadways contributed to the economic development that generated the revenue in this industry sector. Enhanced initiatives for working together to develop the infrastructure and continue economic prosperity may by a goal of the committee.

The south east part of the planning area does not indicate any oil and gas activity. However, a relatively small increase in heavy haul traffic resulting from elevator consolidation is indicating significant impact within deteriorated TMS roadways. Given the deteriorated condition level on the roadways, modest increases in heavy haul traffic can have significant impacts to these non-structural roadways.

Figure ii(a), ii(b), ii(c), and ii(d) illustrate the results of the impact analysis for the individual road sections identified. The maps identify road segments with minor, moderate, major and severe impact costs.

The analysis reviewed the results of the impact analysis in combination with the haul links and corridors within the area. The analysis determined Highway No. 21 linking Highway No. 1 and Highway No. 16 can provide a vital link to the agricultural sector when added to the existing primary haul corridor network for the area. However, primary haul corridors require the structural capacity to sustain heavy haul traffic. In this proposed addition to the primary haul network 69.8 km of TMS roadway along this corridor requires upgrading to pavement structural capacity. The result would however provide a vital north-south link to Highway No. 1 on the south. The primary link north of Unity to Highway No. 16 is already available through primary haul Highway No. 17 to the west and Highway No. 29 to the east. The Unity to Maidstone connection would provide a direct north-south link along this corridor. Upon completing the upgrading of the non-structural areas along Hwy 21 south, it is recommended to apply for reclassification from the current secondary weight class to primary weight class between Highway No. 16 and Highway No.1. It is also recommended to address this proposed corridor link with the South West Area Transportation Planning Committee so planning in the south west area would include infrastructure developments along Highway No. 21 so the link may continue south to the junction of Highway No. 1. It is also recommended the West Central Committee review planning activities with the North West Committee to determine if industry forecasts determine a need for the Highway No. 21 corridor to extend north of Highway No. 16. Figure iii illustrates the proposed primary haul network for the West-Central area.

The results of the impact analysis were in turn analyzed in combination with the haul links and corridors within the area. The analysis provided a priority listing that the committee may use as a guide for potential systems improvements in the area as a supplement to existing operational practices for upgrade and maintenance programming. The priority listing focused on the higher impact cost areas, but considered other factors including haul links and corridors, road surface condition, and traffic. Several jurisdictional authorities are responsible for the roadways listed. Therefore, other decision factors (i.e. budget resources) may impact the priority of systems improvements in the area.

The desired strategy to mitigate the high impact areas is dependent on the roadway surfacing structure. Pavements are designed to a structural capacity. Therefore, impact mitigation may be attained through structural rehabilitation. The TMS surfaces are non-structural. Upgrade is a requirement. However, due to the reality of limited budget resources, the strategy may include other temporary initiatives including municipal partnerships to re-route the heavy haul traffic in order to sustain the weaker roadway surfaces until upgrading funding becomes available. In the south east part of the committee area, Highway No. 42, Highway No. 45, and Highway No. 342 are prioritized for upgrading to provide the industry link to the main travel corridors. However, they may have the potential for temporary municipal partnership arrangements until upgrade funding becomes available. However, further analysis and discussions with municipal authorities is required before determining the optimal alternate route; including terms and conditions of such an agreement. The gravel road surfaces throughout the West Central area are non-structural. However, they are less expensive to maintain than the TMS surfaces. As a result, the high impact gravel areas may be mitigated through either structural upgrade or enhanced maintenance activities. The decision for detailed maintenance or upgrading programming on any road surface identified is the function of the agency responsible. A detailed operation analysis for determining treatment scheduling was not required in this regional planning study.

The following table summarizes the priority listing for systems improvements in the West Central area.

Table ii - Priority Listing

No.	Roadway	From	To	Length (km)	Surface Type	Initial Condition Unit WDV ($/km)	Unit Impact ($/km)	Comments/Strategy
1	Hwy 44 and Hwy 21	Glidden	Etonia	15	TMS	$55,090	N/A	- Upgrade - For proposed Hwy No. 21 primary corridor
2	Hwy 21	S. Sask. River	16 km South of Etonia	16.8	TMS	$59,558	N/A	- Upgrade - Final remaining non-structural section in proposed Hwy No. 21 primary corridor
3	Hwy 21	Hwy 40	Hwy 16	38	TMS	$62,000	$75,159	- Upgrade for proposed Hwy 21 primary corridor - Severe impact potential
4	Hwy 21	S. Sask. River	Hwy 16	N/A	Pavement	N/A	N/A	- Apply for classification revision from secondary weight class to primary weight class
5	Hwy 7	Marengo	Alberta Border	40	Pavement	$23,818	$43,955	- Surface rehabilitation - Severe impact potential - Primary haul corridor
6	Hwy 17	Macklin	Alberta Border - North	25.8	Pavement	$23,813	$38,731	- Surface rehabilitation - Major impact potential - Primary haul corridor
7	Hwy 14	Senlac Access	Alberta Border	13.5	Pavement	$53,256	$34,962	- Surface rehabilitation - Major impact potential - Primary haul corridor

No.	Roadway	From	To	Length (km)	Surface Type	Initial Condition Unit WDV ($/km)	Unit Impact ($/km)	Comments/Strategy
8	Hwy 7	Hwy 21	Hwy 307	31.7	Pavement	$24,748	$35,758	- Surface rehabilitation - Major impact potential - Primary haul corridor
9	Hwy 15	0.5 km East of Milden	Jct. No. 4	35.8	Pavement	$40,152	$23,924	- Surface rehabilitation - Major impact potential - Primary haul corridor
10	Hwy 31	Luseland	Salvador	13	TMS	$55,677	$77,122	- Upgrade - Severe impact potential
11	Hwy 31	Salvador	5 km East of Denzil	18	TMS	$58,085	$35,043	- Upgrade - Major impact potential
12	Hwy 31	Denzil, 5 km East.	Jct 14, 4 km South	16.2	Pavement	$17,316	$43,760	- Rehabilitation - Severe impact potential
13	Hwy 51	Kerrobert	Hwy 317	34	TMS	$53,361	$73,585	- Upgrade - Severe impact potential
14	Hwy 45	Macrorie	Hwy 15	27	TMS	$98,251	$46,780	- Upgrade or municipal route partnership - Special SE link - Severe impact potential
15	Hwy 342	Jct 42, 12 km North of Beechy	Beechy	12	TMS	$$58,966	$64,344	- Upgrade or municipal route partnership - Special SE link - Severe impact potential

No.	Roadway	From	To	Length (km)	Surface Type	Initial Condition Unit WDV ($/km)	Unit Impact ($/km)	Comments/Strategy
16	Hwy 42	Jct 373 - Near South Sk River	Hwy 342	38	TMS	$55,669	$37,496	- Upgrade or municipal route partnership - Special SE link - Major impact potential
17	Hwy 307	Hwy 7	4 km South of Smiley	13	TMS	$55,405	$89,049	- Upgrade - Severe impact potential
18	Hwy 21	Jct 14 - Unity	Jct 787	17.6	Pavement	$19,534	$58,875	- Recent reconstruction in 1998 - Early loss of life potential - Severe impact potential
19	Hwy 303	Hwy 21	Alberta Border	45.6	Pavement	$23,756	$42,793	- Recent reconstruction in 1999/2000 - Early loss of life potential - Severe impact potential
20	Grid 684	Hwy 303	Hwy 3	38	Gravel	$4,520	$38,417	- Upgrade or enhanced maintenance - Major impact potential
21	Hwy 3	Paradise Hill	Hwy 17	26.4	Pavement	$17,649	$42,196	- Surface rehabilitation - Severe impact potential
22	Hwy 51	Hwy 317	Alberta Border	30	TMS	$65,595	$28,036	- Upgrade - Major impact potential

No.	Roadway	From	To	Length (km)	Surface Type	Initial Condition Unit WDV ($/km)	Unit Impact ($/km)	Comments/Strategy
23	Hwy 44	Hwy 30	Hwy 21	32	TMS	$55,535	$33,934	- Upgrade - Major impact potential
24	Hwy 45	Birsay	Hwy 219	34	TMS	$60,132	$21,235	- Upgrade or municipal route partnership - Special SE link - Major impact potential
25	Hwy 42	Hwy 342	Dinsmore	60	TMS	$52,221	$28,155	- Upgrade or municipal route partnership - Special SE link - Major impact potential
26	Hwy 342	Beechy	Beechy - 13 km West	13	TMS	$59,762	N/A	- Upgrade or municipal route partnership - Special SE link
27	Hwy 374	Jct 4 - 8 km East of Kyle	Jct 4 - Near Kyle	7	TMS	$51,705	N/A	- Upgrade or municipal route partnership - Special SE link
28	Hwy 342	Beechy - 29 km West	Jct 4 - 8 km East of Kyle	13	TMS	$37,376	N/A	- Upgrade or municipal route partnership - Special SE link
29	Hwy 42	Hwy 44	Hwy 15	16	TMS	N/A	N/A	- Upgrade or municipal route partnership - Special SE link
30	Hwy 21	Hwy 303 (Southern Junction)	Hwy 303 (Northern Junction)	4.87	Pavement	$40,615	$37,569	- Surface rehabilitation - Major impact potential
31	Hwy 40	Hwy 29	Hwy 21	56	TMS	$63,665	$35,569	- Upgrade - Major impact potential

No.	Roadway	From	To	Length (km)	Surface Type	Initial Condition Unit WDV ($/km)	Unit Impact ($/km)	Comments/Strategy
32	RM 502 Road	Grid 684	5 km West	5	Gravel	N/A	$32,019	- Upgrade or enhanced maintenance - Major impact potential
33	Hwy 317	Hwy 7	Hwy 51	45.4	Gravel	$7,491	$28,285	- Upgrade or enhanced maintenance - Major impact potential
34	Grid 675	10 km South of Neilburg	Neilburg	10	Gravel	N/A	$39,109	- Upgrade or enhanced maintenance - Major impact potential
35	Grid 675	Hwy 16	Grid 798	34.3	Gravel	N/A	$37,492	- Upgrade or enhanced maintenance - Major impact potential
36	RM 292 Road	Jct 7 (Marengo)	12.0 km South	12	Gravel	N/A	$32,697	- Upgrade or enhanced maintenance - Major impact potential
37	RM 472 Road	Lloyd - 3 km South	3 km East	3	Gravel	N/A	$32,697	- Upgrade or enhanced maintenance - Major impact potential
38	RM 472 Road	Marshall	12.0 km West	12	Gravel	N/A	$33,025	- Upgrade or enhanced maintenance - Major impact potential
39	RM 471 Road	Hwy 21, 12 km N of Maidstone	3 km East	3	Gravel	N/A	$32,844	- Upgrade or enhanced maintenance - Major impact potential

No.	Roadway	From	To	Length (km)	Surface Type	Initial Condition Unit WDV ($/km)	Unit Impact ($/km)	Comments/Strategy
40	RM 472 Road	Lloyd - 3 km East	3 km South	3	Gravel	N/A	$33,281	- Upgrade or enhanced maintenance - Major impact potential
41	RM 320 Road	Coleville	4 km South	4	Gravel	N/A	$33,459	- Upgrade or enhanced maintenance - Major impact potential
42	Grid 771	Hwy 21	Hwy 317	45.7	Gravel	N/A	$38,703	- Upgrade or enhanced maintenance - Major impact potential
43	Hwy 40	Hwy 21	Neilburg	35.5	Pavement	$18,906	$37,819	- Upgrade - Major impact potential
44	Grid 772	Smiley	Hwy 317	19.3	Gravel	N/A	$37,843	- Upgrade or enhanced maintenance - Major impact potential
45	RM 502 Road	Grid 684	Hwy 17	33	Gravel	N/A	$33,407	- Upgrade or enhanced maintenance - Major impact potential
46	Grid 675	Neilburg	Hwy 16	32.3	Gravel	N/A	$37,121	- Upgrade or enhanced maintenance - Major impact potential
47	Grid 675	Hwy 307	Hwy 51	19.5	Gravel	N/A	$36,723	- Upgrade or enhanced maintenance - Major impact potential
48	Grid 676	Hwy 51	Grid 771	24	Gravel	N/A	$36,021	- Upgrade or enhanced maintenance - Major impact potential

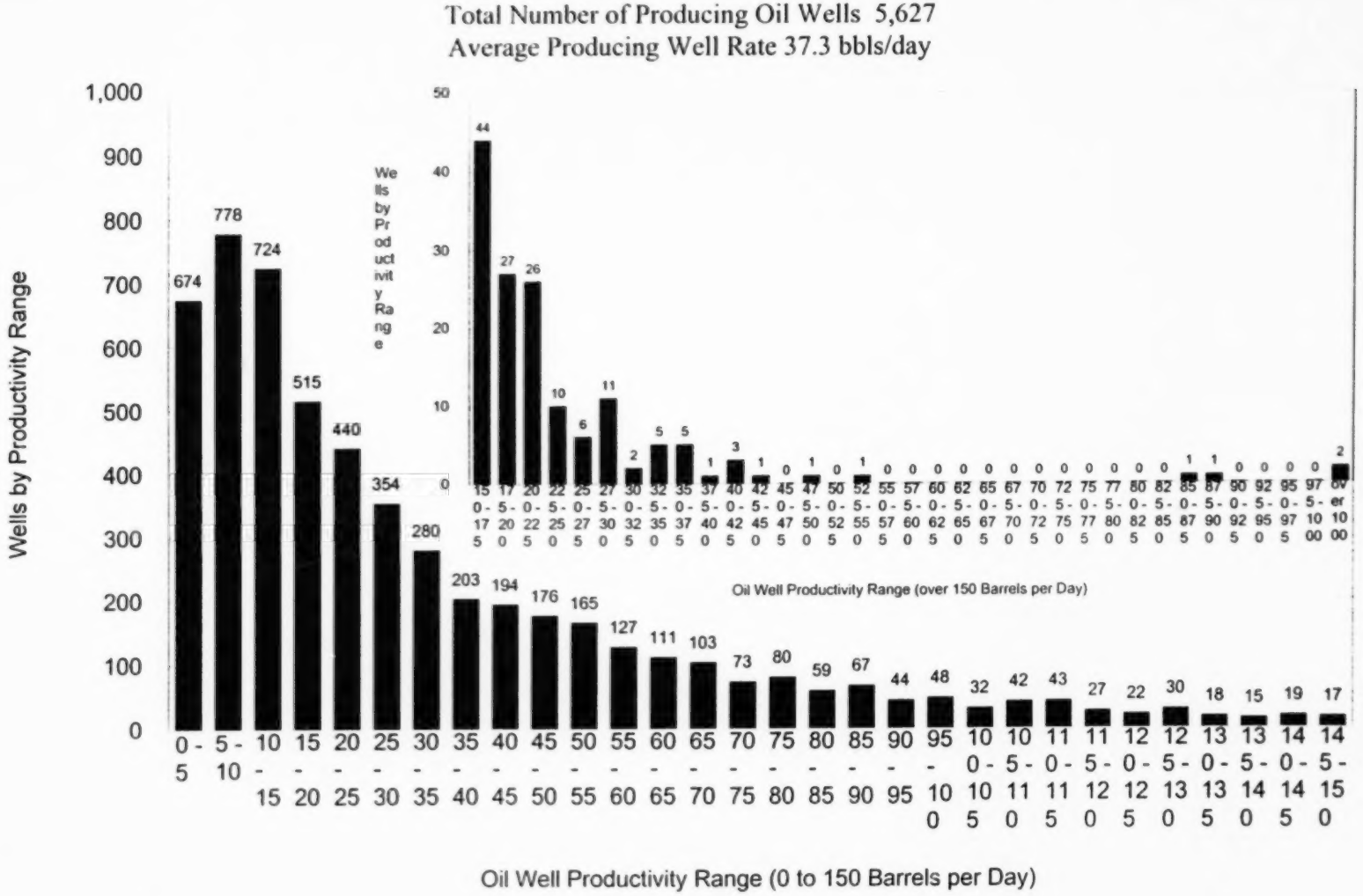
No.	Roadway	From	To	Length (km)	Surface Type	Initial Condition Unit WDV ($/km)	Unit Impact ($/km)	Comments/Strategy
49	RM 352 Road	4 km West of Hwy 317	4 km South	4	Gravel	N/A	$33,781	- Upgrade or enhanced maintenance - Major impact potential
50	RM 352 Road	Hwy 317	8 km West	8	Gravel	N/A	$32,949	- Upgrade or enhanced maintenance - Major impact potential
51	RM 318 Road	Hwy 31 - 2 km South of Plenty	Jct 4	45	Gravel	N/A	$31,420	- Upgrade or enhanced maintenance - Major impact potential - Special link to elevator access Dodsland
52	Hwy 31	Plenty	Jct 21	36	TMS	$56,412	$10,629	- Upgrade - Moderate impact potential - Special link to elevator access Dodsland - Currently under construction
53	Grid 657 & 658	Jct 7	Jct 14	101.7	Gravel	N/A	N/A	- Maintenance Enhancement - Special link to elevator central Wilkie, elevator central Dodsland, and Hwy 7

Appendix 3

Saskatchewan Heavy "Oil Wells" by Productivity Range

Appendix 3

Saskatchewan Heavy "Oil Wells" By Productivity Range



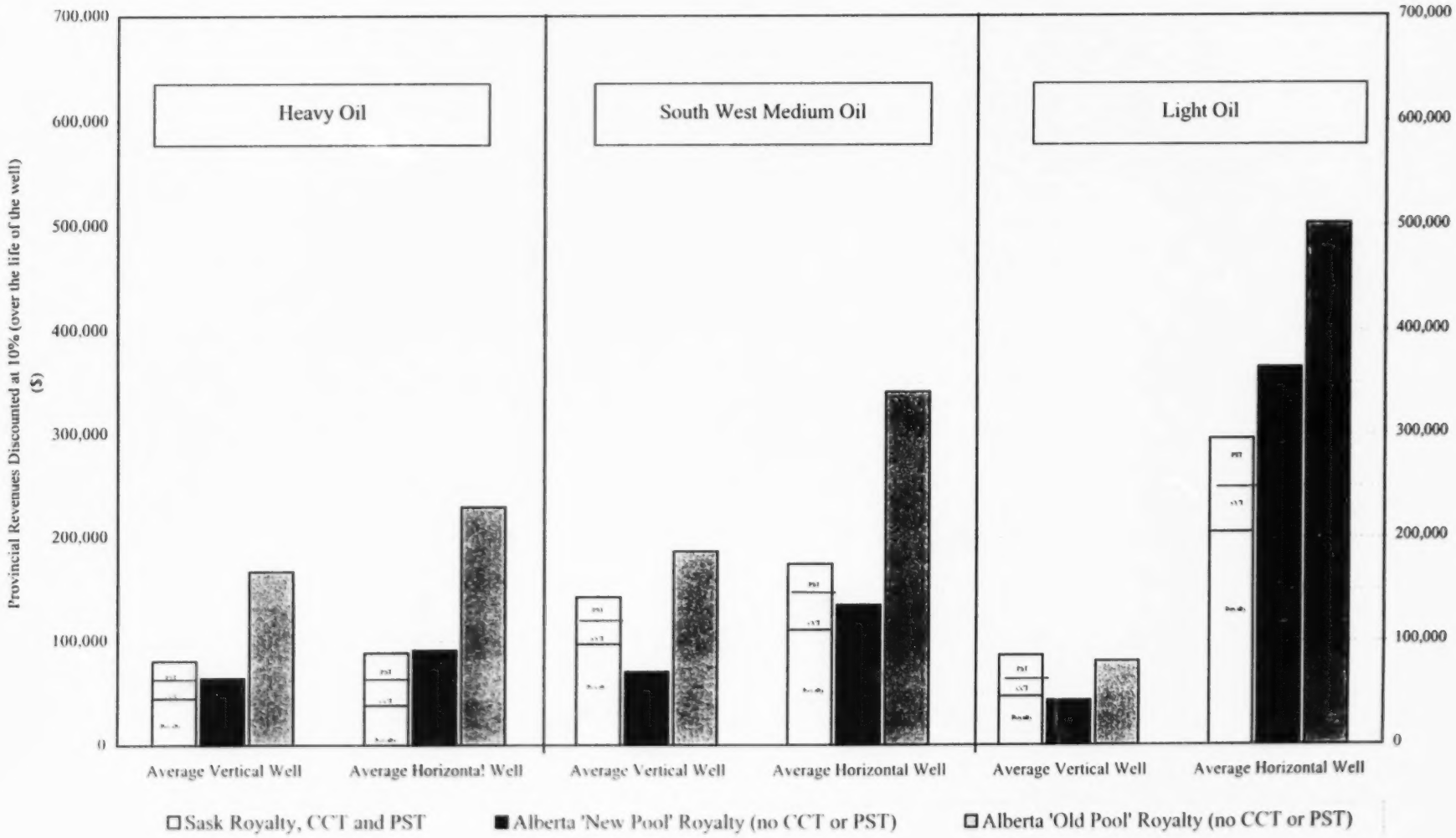
Appendix 4

Crude Oil - Provincial Revenue Comparison

Appendix 4

Crude Oil - Provincial Revenue Comparison

Development Wells Drilled on Crown Land



Appendix 5

Royalty Incentive Volumes for New Oil Wells Drilled on or After October 1, 2002

Appendix 5
Royalty Incentive Volumes for New Oil Wells Drilled on or After October 1, 2002

	Incentive Volume and Royalty Rate Applicable to New Wells Drilled on CROWN LANDS
Crude Oil - Using Vertical Drilling Technology	
Deep Exploratory Wells	16,000 cubic metres @ 2.5% max.
Deep Development Wells	8,000 cubic metres @ 2.5% max.
Non-Deep Exploratory Wells	4,000 cubic metres @ 2.5% max.
Non-Deep Development Wells	0
Crude Oil - Using Horizontal Drilling Technology	
Deep Exploratory and Development	16,000 cubic metres @ 2.5% max.
Non-Deep Exploratory and Development	6,000 cubic metres @ 2.5% max.

Appendix 6

Alberta Draft Trial Road Notification and Repair Agreement

DRAFT APPENDIX 6

AGREEMENT #.....

TRIAL
ROAD NOTIFICATION AND REPAIR AGREEMENT

The Agreement made in duplicate this ____day of _____, _____

Between:

ABC Municipality
(the "Municipality")

and

XYZ Company
(the "Company")

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to define the terms and conditions under which the parties to this Agreement agree:

(a) to provide notification to each other regarding the use of Roads and Appurtenances within the Municipality for the purpose of moving vehicles and equipment associated with oil and gas industry activities (excluding seismic), including all activities related to the construction and operation of pipelines and related facilities.

(b) with the monitoring of such use.

(c) on an inspection process.

(d) that in the event there is damage from the use of Roads, those parties responsible for such damage are held accountable.

This Agreement is intended to engage both the Municipality and the Company in an effort to avoid causing damage to Roads and Appurtenances.

2. TERM

(a) This Agreement shall commence on the date shown on this page and shall continue until terminated by either party in accordance with paragraph 2(b) below.

(b) This Agreement may be terminated by either party upon thirty (30) days written notice being given to the other party.

(c) Notwithstanding the termination of this Agreement, the provisions respecting liability and indemnification, to the extent of liabilities that may have accrued prior to the termination, and provisions respecting settlement of accounts shall remain in full force in accordance with their terms.

3. NOTIFICATION

The Company shall provide advance written notification ("Notification"), in accordance with Schedule "A" to the Municipality of its intention to use the Roads.

4. PRELIMINARY REVIEW BY MUNICIPALITY

After receipt of the Notification the Municipality shall conduct a preliminary review ("Preliminary Review") of the Notification. If following the Preliminary Review the Municipality, acting reasonably, determines that it is not necessary to impose any restrictions on the Company in relation to the activities specified in the Notification, the Municipality shall notify the Company accordingly, and the Company may proceed to use the Roads in strict compliance with the Notification. The Municipality shall complete its Preliminary Review of the Notification, and provide its response to the Company, within two business days of receiving the Notification from the Company.

5. RESTRICTIONS AND RELAXATIONS

(a) If, following the Preliminary Review of the Notification the Municipality, acting reasonably, determines that it is necessary to impose restrictions on the Company in relation to the Notification, the Municipality shall provide the Company with a notice in writing, in the form set out in Schedule "B" attached hereto (the "Restrictions and Relaxations Notice"). The Municipality shall set out the specifics of the restrictions imposed on the Company in relation to the Notification, and the details of any relaxations it is prepared to grant to those restrictions, and the conditions under which such relaxations will be granted, including any requirements for the Company to post security. The Municipality shall have two business days from the date of receipt of the Notification from the Company within which to issue any Restrictions and Relaxations Notice.

(b) It is understood that any relaxations granted by the Municipality comply with provincial regulations and that the Municipality has no authority to grant permits for loads over the legal load limits pursuant to the Alberta Public Vehicle Dimensions and Weight Regulations (1998).

(c) Upon receipt of the Restrictions and Relaxations Notice, the Company may:

(i) comply with the restrictions imposed; or
(ii) comply with the terms of the relaxations.

The Company shall provide the Municipality with notice of its decision within two business days of receiving the Restrictions and Relaxations Notice from the Municipality.

6. SECURITY

(a) The Municipality may require that the Company post security (the "Security") as set out in the Restrictions and Relaxations Notice referred to in 5 above for repairs that are required by paragraph 8 (c) below, in an amount to be specified by the Municipality.

(b) If the Municipality requires that the Company post Security, the Company shall not use the Roads until it has:

(i) delivered to the Municipality both the Security required (in the form of cash, bond, certified cheque, or irrevocable letter of credit), and, where appropriate, the duly executed duplicate copy of the Relaxations and Relaxations Notice; and

(ii) an Initial Inspection pursuant to 7(a)1. below has been completed.

7. INSPECTIONS

(a) In the event that the Municipality and the Company have signed a Restrictions and Relaxations Notice, the following inspections of the Roads identified within the relevant Notice shall be carried out, at the following times, and in the presence of official designates of both the Municipality and the Company:

1. prior to use of the Roads (the "Initial Inspection"); and

2. following completion of use of the Roads (the "Final Inspection").

(b) The Company shall notify the Municipality within 24 hours of the completion of its use of the Roads, and the Municipality shall have two business days from receipt of such notification, within which to complete the "Final Inspection".

(c) The Municipality and the Company may, at any time during the term of this Agreement, request that an inspection of the Roads be carried out (the "Interim Inspection").

(d) An "Interim Inspection" shall be carried out within two business days of receipt of a request for such inspection, and in the presence of official designates of both the Municipality and the Company.

(e) The Municipality and the Company may, at any time during the term of this Agreement, and regardless of whether a Restrictions and Relaxations Notice has been issued, request that an inspection of the Roads be carried out.

(f) The Municipality and the Company shall both acknowledge the results of all inspections by having the inspection document(s) signed by their official designates – see Schedule "C".

(g) a fee of $100 shall be paid by the Company to the Municipality for each of the Initial Inspection, the Final Inspection, and any Interim Inspection or inspection under 7(e) above requested by the Company.

8. OTHER TERMS AND CONDITIONS

The following terms and conditions shall apply at all times during the term of this Agreement, and regardless of whether the Municipality has issued a Relaxation Notice:

(a) **Restriction on Use**

The Municipality reserves the right to determine the hours during which vehicles and equipment may be moved on the Roads covered by this Agreement, and may temporarily suspend approvals under this Agreement, if in the opinion of the Municipality, acting reasonably, the prevailing weather conditions, or emergencies warrant such suspension.

(b) **Maintenance**

If required by the Municipality, the Company shall provide, at its sole expense, all equipment, materials and labour required to maintain the road surface in the same condition it was immediately prior to the use of the Road.

(c) **Damages**

(i) The Company shall be liable at all times for the repair, to the reasonable satisfaction of the Municipality, of any damage to the Roads caused by the Company's use. Any repairs required by this section shall restore the road surface to the same condition it was in immediately prior to the use of the Road. The Company shall, providing that the weather and weather related conditions permit, complete these repairs within five (5) business days of being notified by the Municipality of the need for such repairs.

(ii) In the event the Company is prevented by the weather or weather related conditions from completing the repairs specified in 8 (c)(i) above within five business days, the Municipality, acting reasonably, may specify a different period of time within which the Company must complete such repairs.

(d) In the event that the Company fails to complete the repairs required by paragraph 8(c) (i) and (ii) above, the Municipality may draw upon the Security to effect the repairs in accordance with the provisions set out in Schedule "D". In the event that the Security is not sufficient to meet the cost of repairs, or if no Security was posted, the Company shall be liable to the Municipality for all reasonable costs (including legal) incurred by the Municipality in repairing the roads to the same condition they were in immediately prior to use by the Company and recovering the costs of such repairs. The Company shall have a right to review details of all expenses incurred by the Municipality.

(e) **Ingress and Egress**

The Company shall be responsible at all times for securing for its contractors and subcontractors all rights of ingress and egress to all sites covered by this Agreement. The Company shall be responsible for notifying its contractors and subcontractors of any limitations or restrictions affecting ingress and egress and shall be responsible for ensuring that the contractor and subcontractors abide by all such limitations or restrictions.

(f) **Emergencies**

The Municipality may, in emergency situations, and acting reasonably, and without giving any notice to the Company as required elsewhere in this Agreement, take immediate and all action necessary to complete repairs to the Roads that it deems necessary to ensure public safety.

(g) The Company may, in emergency situations, and acting reasonably, and without giving any notice to the Municipality as required elsewhere in this Agreement, take immediate and all action necessary to move vehicles and equipment on the Roads that it deems necessary to ensure public safety or preserve the environment.

(h) **Notification**

The Municipality and the Company shall provide notification to each other of any action taken under 8(f) and (g) above as soon as is reasonably practicable.

(i) **Indemnity**

The Company shall indemnify the Municipality against all actions, proceedings, claims, demands and costs suffered by the Municipality to the extent that they are attributable to the damage caused by the Company, its employees, agents, contractors or subcontractors to the Roads. In no event shall the Company be required to indemnify the Municipality for consequential damages suffered or claimed by a third party.

(j) **Force Majeure**

No party shall be deemed to be in default with respect to non-performance if due to strikes, lockouts, fire, tempest or acts of God or the Queen's enemies, or any other cause (whether similar or dissimilar to those enumerated) beyond its control; but lack of finances shall in no event be deemed to be a cause beyond a party's control.

9. NOTICES

All notices required to be given under the terms of this Agreement, shall be in writing and may be mailed or electronically transmitted, addressed to the parties as follows:

Municipality: Address:_____
Attention: Name & Title:_____
Tel #:_____ Fax#:_____
e-mail:_____

Company: Address:_____
Attention: Name & Title:_____
Tel #:_____ Fax#:_____
e-mail:_____

Either party may, from time to time, change its address for service by giving written notice to the other party. Any notice shall be deemed to have been given and received: if delivered personally, on the day delivered; if sent by registered mail, on the 4th business day following the day it was posted; and if electronically transmitted, 12 hours after sending. In the case of postal disruption, or an anticipated postal disruption, all notices to be given under this Agreement shall be electronically transmitted or delivered by hand.

10. ASSIGNMENT

This Agreement shall not be assigned by either party hereto without the prior written consent of the other party, which consent shall not unreasonably be withheld.

11. WAIVERS

a) Failure by either party, at any time, to require strict performance by the other party of any provision of this Agreement will in no way affect the first party's rights hereunder to enforce such provision; nor will any waiver by either party of any breach be held to be a waiver of any succeeding breach or waiver of any other provision;

b) No waiver of any breach of a covenant or provision of this Agreement shall take effect or be binding upon a party unless it is in writing.

12. ENUREMENT

This Agreement shall enure to the benefit of, and be binding upon the Municipality and the Company and their respective heirs, executors, administrators, successors and permitted assigns.

13. Time shall be of the essence of this Agreement.

IN WITNESS WHEREOF the parties hereto have executed and delivered this Agreement as of the date and year first above written.

MUNICIPALITY

Per: _____

Per: _____

COMPANY

Per: _____

Per: _____

AGREEMENT # .....

SCHEDULE "A"

(To be completed by the Company or Company's Designated Contractor)

NOTIFICATION FORM

(This Notification when completed and duly signed is made pursuant to, and is governed by, the *Road Notification and Repair Agreement* between the Municipality and the Company dated_____)

Municipality: _____

Company: _____

Company Contact: _____ **Phone:** _____

Designated Contractor Contact: _____

Phone: _____ **Cell:** _____ **Fax:** _____

Details of Roads to be used (attach sketch or map)

Estimate of Loads to be transported and relevant dates
(e.g. estimate of the maximum number of loads and estimate of maximum weights and dimensions of the loads, and dates on which loads will be moved)

Provincial Permit# _____ (copy attached)

Axle Weight Allowance: _____ 100% _____

Dated: _____

Signed: _____
Authorized Company Representative or Designated Contractor Representative

AGREEMENT # .....

SCHEDULE "B"

(To be completed by the Municipality)

RESTRICTIONS AND RELAXATIONS NOTICE

(This Notice when completed and duly signed is made pursuant to, and is governed by, the *Road Notification and Repair Agreement* executed between the Municipality and the Company and dated _____)

The provisions under this Schedule "B" shall not override Provincial regulations. The exceeding of legal load limits is not permitted by the Municipality.

Municipality: _____

Company: _____

Company Contact: _____ **Phone:** _____

Designated Contractor Contact: _____

Phone: _____ Cell: _____ Fax: _____

Details of Roads to be used (attach sketch or map)

Estimate of Loads to be transported and relevant dates
(e.g. estimate of the maximum number of loads and estimate of maximum weights and dimensions of the loads, and dates on which loads will be moved)

Provincial Permit# _____

Axle Weight Allowance: _____ 100% _____

SCHEDULE "B" (continued)

A. Details of prohibitions, limitations, conditions or restrictions, i.e.

Roads to be used
Dust Control - type
Other?
Maximum percent of axle weight?
Travel Speed?
Centre of road surface travel?
Dimensions – length and width
Times of day
Escort car required?

(Note: the above are some examples of prohibitions, limitations, conditions or restrictions that may be imposed by the municipality – this space will be blank on the actual schedule and will be completed by the Municipality)

B. Details of Relaxations

Roads to be used Time of day Dimensions – height and width
Maximum % of axle weight Maximum travel speed Dust Control - type

(Note: these are some examples of relaxations that may be approved by the Municipality, this space will be blank on the actual schedule and will be completed by the Municipality)

C. Security Required: $ _____

Dated: _____

Signed: _____
Authorized Municipal Representative

ACCEPTED AND AGREED TO this _____ day of _____, _____

Company: _____

Signed: _____
Authorized Company Representative

AGREEMENT # .....

SCHEDULE "C"

(To be completed by the Municipality and signed by authorized representatives of the Municipality and the Company or its Designated Contractor)

INSPECTION DOCUMENT

DATE: _____

MUNICIPALITY:_____ AUTHORIZED REPRESENTATIVE: _____

COMPANY:_____ AUTHORIZED REPRESENTATIVE: _____

AGREEMENT NO:_____

SECURITY: IN PLACE:_____ REQUIRED:_____ AMOUNT: $_____

INSPECTION: PRE:_____ POST:_____ INTERIM:_____ NUMBER:_____

ROAD BANS: NO:_____ YES:_____ % AXLE:_____

WEATHER (At Time Of Inspection):_____

CURRENT LOCAL CONDITIONS(i.e. Wet/Frozen):_____

INSPECTION DETAILS:

A) ROAD SURFACE TYPE:_____

ROADS TO BE USED:_____

	GOOD	BAD	N/A	LOCATION/COMMENTS
B) ROAD SURFACE CONDITIONS:	____	____	____	_____
	____	____	____	_____
	____	____	____	_____
C) SIGNS:	____	____	____	_____
	____	____	____	_____
D) CULVERTS:	____	____	____	_____
	____	____	____	_____
E) APPROACHES:	____	____	____	_____
	____	____	____	_____

F) DUST CONTROL: NOT REQUIRED:_____ REQUIRED:_____ TYPE: _____

G) OTHER REQUIREMENTS:(i.e. Grading, Gravel, Signage, Time Restrictions)

_____

_____

H) REMEDIAL WORK REQUIRED (If Interim or Post)

_____

_____

PICTURES TAKEN: YES:_____NO:_____

COMMENTS:
COMPANY:_____

_____

MUNICIPALITY:_____

_____

INITALS: COMPANY_____MUNICPALITY_____

Copy provided to Company YES:_____NO:_____

(NOTE: In the event that the Company elects not to participate in an Inspection, this form, once signed by the authorized representative of the Municipality, will be considered a valid "Inspection Form" for the purposes of this Agreement.)

AGREEMENT # .....

SCHEDULE "D"

SECURITY DRAW DOWN PROVISIONS

The Municipality may draw upon all or part of any Security required by this Agreement to complete repairs and to recover all costs (including legal) incurred by the Municipality in the event of any one of the following:

1. The Company fails to complete required repairs within 5 business days of being notified by the Municipality of the need for such repairs.

2. The Company fails to complete repairs to the satisfaction of the Municipality within 2 business days of being notified by the Municipality of deficiencies in repairs previously required by the Municipality under 1 above.

3. Damage attributable to the Company has been rectified by the Municipality in accordance with the provisions of this Agreement and the Company has failed to pay the costs of such rectification within 15 business days after receipt of an invoice for the work from the Municipality.

4. Emergency repair work has been completed by the Municipality to rectify damage attributable to the Company in accordance with the provisions of this Agreement and the Company has failed to pay the cost of such emergency repairs within 15 business days after receipt of an invoice for the work from the Municipality.

5. The Security to be provided by the Company pursuant to this Agreement is due to expire within a period of 30 days and the Company is still operating in the Municipality under the terms of this Agreement, has not provided notification of cancellation of this Agreement and has not deposited a renewal or replacement of such Security in terms and form acceptable to the Municipality.

Invoking these draw down provisions shall be authorized by the Chief Administrative Officer of the Municipality who shall make a reasonable attempt to notify the Company prior to, or concurrent with, taking such action. The Municipality may make demands as payee and beneficiary under the Security. The Municipality may hold the proceeds as security for the performance of the obligations of the Company under this Agreement and the Municipality may use the proceeds to discharge any of the obligations of the Company under this Agreement. After the discharge of all of the obligations of the Company pursuant to this Agreement, any remaining balance shall be returned to the Company within 15 business days. The Municipality shall not charge any administrative fee relating to the holding or draw down of security nor shall it pay interest on the funds held.

AGREEMENT # .....

SCHEDULE "E"

Definition of Terms used in this Agreement

"Appurtenance" means:

a sidewalk, ditch, or any type of wall, fence, guardrail, curb, pavement marking, traffic control device, illumination device, mailbox or barrier adjacent to or in, along or on a road, or any construction, obstruction, erection or any situation, arrangement or disposition of any earth, rock, tree or other material or thing adjacent to or in, along or on a road that is not on the travelled portion of the road

"Business Days" means:

Monday to Friday, during normal business hours, excluding statutory holidays

"Company" means:

In the body of this Agreement:

The holder of a license or approval issued by the Alberta Energy and Utilities Board.

For the purposes of Schedules "A" "C" and "D" to this Agreement, the word "Company" may be taken to include a "designated contractor".

"Continuous haul" means:

regular, ongoing use of Roads over a defined route and time period by a specified Company, which use is likely to be the major cause of road maintenance requirements or damage relative to other users of the Roads involved

"Designated Contractor" means:

A company or someone hired by a "Company" (as defined herein) to perform work for or on behalf of the Company

"Legal load" means:

(i) the maximum gross weight that may be borne by a tire, an axle or an axle group of any of them; or

(ii) the maximum gross weight that may be borne by a public vehicle or combination of public vehicles

on a highway, secondary road, rural road or street and as set out from time to time under the Motor Transport Act and regulations or orders made there under

"Municipality" means:

(i) a city, town, village, summer village, municipal district or specialized municipality

(ii) a town under the parks Town Act, or

(iii) a municipality formed by special Act

"Pipeline" as defined in the Oil and Gas Conservation Act means:

"any pipe or any system or arrangement of pipes wholly within Alberta and whereby oil, gas or synthetic crude oil or water incidental to the drilling for or production of oil, gas or synthetic crude oil is conveyed, and

(i) includes all property of any kind used for the purpose of, or in connection with, or incidental to, the operation of a pipeline in the gathering, transporting, handling and delivery of oil, gas, synthetic crude oil or water, but

(ii) does not include any pipe or any system or arrangement of pipes that constitutes a distribution system for the distribution within a community of gas to ultimate consumers."

"Pipeline" as defined in the Pipeline Act means:

"a pipe used to convey a substance or combination of substances, including installations associated with the pipe, but does not include

(i) a pipe used to convey water other than water used in connection with a facility, scheme or other matter authorized under the Oil and Gas Conservation Act or the Oil Sands Conservation Act;

(ii) a pipe used to convey gas, if the pipe is operated at a maximum pressure of 700 kilopascals or less, and is not used to convey gas in connection with a facility, scheme or other matter authorized under the Oil and Gas Conservation Act or the Oil Sands Conservation Act; or

(iii) a pipe used to convey sewage".

"Road" means:

a road under the direction , control and management of a municipality, including

(i) a developed road on which improvements such as grading or surfacing have been made for the purpose of public access and includes any appurtenances, and includes a bridge forming part of a public road and any structure incidental to a public road;

(ii) an undeveloped surveyed road allowance

"Well development" means:

"Well drilling" means:

any activity to bore into the earth for the purpose of creating a well. A "well" means an orifice in the ground completed or being drilled

(i) for the production of oil or gas;
(ii) for injection to an underground formation;
(iii) as an evaluation well or test hole; or
(iv) to or at a depth of more than 150 metres, for any purpose, but does not include one to discover or evaluate a solid inorganic mineral and that does not or will not penetrate a stratum capable of containing a pool or oil sands deposit

"Well production" means:

"Well servicing" means:

Appendix 7

The Saskatchewan Petroleum Research Incentive Program

Appendix 7
The Saskatchewan Petroleum Research Incentive Program

Objectives:

- To research, develop, and demonstrate promising new technologies that will lead to the expanded development and production of Saskatchewan's oil and natural gas resource.
- To develop Saskatchewan's oil and natural gas research expertise and facilities.
- To improve the efficiency and cost-effectiveness of oil and natural gas technologies.
- To reduce the environmental impact of oil and natural gas production.
- To transfer the technology developed through the program so that a broad awareness is developed in the oil and natural gas industry of the knowledge and information generated through the program.

Royalty Tax Credit Amount:

- The program is limited to a total royalty tax credit amount of $7 million over a 5 year period.
- 30% of the project costs approved under the program will be credited towards future Crown royalties and freehold production taxes paid to the province.

Approved Project Costs:

- The research projects must pertain to pilots:
  - that are implemented in and applicable to Saskatchewan oil or gas fields; and
  - that involve significant novel technology or "know how" relating to oil and natural gas exploration, production, treatment, transportation, upgrading, processing, refining, and/or waste disposal from, or environmental impact of oil and natural gas activity.
- A project application is submitted to Saskatchewan Industry and Resources for approval under the program. The application must contain itemized cost estimates and descriptions of the project.

Final Report:

- Following completion of the project, a final report is submitted to Saskatchewan Industry and Resources containing the actual costs incurred and a detailed description of the work completed and results obtained.